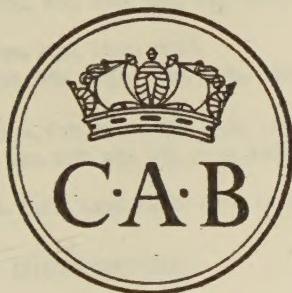


HELMINTHOLOGICAL ABSTRACTS

incorporating

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HELMINTHOLOGICAL ABSTRACTS

Vol. 21, Part 2

1952

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INCORPORATING BIBLIOGRAPHY OF HELMINTHOLOGY

FOR THE YEAR 1952

Vol. 21, Part 2

47—Acta Anatomica. Basle.

- a. LAMS, H., 1952.—“Étude morphologique du cytoplasme de l'oeuf d'*Ascaris megalcephala* au cours de la fécondation.” 14 (1/2), 141–167. [English & German summaries pp. 164–166.]

48—Acta Medica Italica di Malattie Infettive e Parassitarie.

- a. VERNA, F., 1952.—“Le parassitosi intestinali nel territorio del Comune di Vicenza.” 7 (1), 5–10. [English, French & German summaries pp. 9–10.]

(48a) An examination of the faeces of 1,082 students in 20 primary schools in Varese showed 178 to be infected with *Ascaris* and 156 with *Trichuris*. The incidence in the schools ranged from 9·8% to 63·1% and averaged 28%. R.T.L.

49—Acta Medicinae Okayama.

- a. YAMAGUTI, S., 1952.—“Studies on the helminth fauna of Japan. Part 49. Cestodes of fishes, II.” 8 (1), 1–76.

(49a) Yamaguti, continuing his studies on cestodes of fishes in Japan, gives succinct descriptions of 56 species and provides 22 plates with 50 illustrations. He has created 6 new genera, viz., *Glossobothrium*, *Eubothrioides*, *Gastrolecithus*, *Marsupiobothrium*, *Microbothriorhynchus* and *Symbothriorhynchus* and 35 new species, viz., *Bothriocephalus fluviatilis* n.sp., *B. lateolabracis* n.sp., *B. branchiostegi* n.sp., *B. brotulae* n.sp., *B. apogonis* n.sp., *Glossobothrium nipponicum* n.g., n.sp., *Amphicotyle quinquarii* n.sp., *Eubothrioides lamellatus* n.g., n.sp., *Phyllobothrium triacis* n.sp., *P. filiforme* n.sp., *P. serratum* n.sp., *P. loculatum* n.sp., *P. squali* n.sp., *Anthobothrium rajae* n.sp., *A. pteroplateae* n.sp., *A. bifidum* n.sp., *Monorygma megacotyla* n.sp., *Pithophorus vulpeculae* n.sp., *Echeneibothrium bifidum* n.sp., *Marsupiobothrium alopias* n.g., n.sp., *Dinobothrium spinulosum* n.sp., *Acanthobothrium triacis* n.sp., *A. micracantha* n.sp., *A. latum* n.sp., *A. gracile* n.sp., *A. grandiceps* n.sp., *Platybothrium auriculatum* n.sp., *P. musteli* n.sp., *Nybelinia manazo* n.sp., *N. (Syngenes) sphyrnae* n.sp., *N. anguillicola* n.sp., *N. niponica* n.sp., *Microbothriorhynchus coelorrhynchi* n.g., n.sp., *Pterobothrium chaeturichthydis* n.sp., *P. hira* n.sp. and *Symbothriorhynchus uranoscopi* n.g., n.sp. *Dinobothrium planum* Linton, 1922 is transferred to a new genus *Gastrolecithus* and becomes the type. *Rhynchobothrium uncinatum* Linton, 1924 is transferred to *Floriceps uncinatus* n.comb. R.T.L.

50—Acta Tropica. Basle.

- a. MOIGNOUX, J. B., 1952.—“Les onchocerques des équidés.” 9 (2), 125–150. [English & German summaries pp. 149–150.]
b. RENJIFO, S., SANMARTÍN, C. & ZULUETA, J. DE, 1952.—“A survey of the blood parasites of vertebrates in eastern Colombia.” 9 (2), 151–169. [French & German summaries p. 169.]

(50a) *Onchocerca reticulata* like *O. cervicalis* undergoes its larval development in *Culicoides nubeculosus*. Four larval stages are described and figured. The rate of development in the vector is influenced by temperature. According to Moignoux, *O. reticulata* and *O.*

cervicalis are morphologically indistinguishable both as adults and as larvae. The only difference between these two species is their habitat. The former lives in the ligamentum nuchae, the latter in the pastern-joint ligament. Moignoux quotes the known geographical distribution and incidence of *O. reticulata* from the literature and gives a description of the adult; measurements of the microfilaria are tabulated.

R.T.L.

(50b) Microfilariae were present in 8·9% of 702 vertebrates from the plains of eastern Colombia. None of them are described or identified but the photomicrographs illustrate those which occurred in *Columba* sp., *Aramides cajanea*, *Tachyponus surinamus brevipes*, *Myrmecophaga* sp., *Dasyurus novemcinctus*, *Tayassu* sp., *Saimiri sciureus*, *Actus trivirgatus* and *Proechimys o'connelli*.

R.T.L.

51—Agriculture. London.

- a. TAYLOR, E. L., 1952.—“Husk in adult cattle.” 59 (3), 109-112.

(51a) Recently there have been numerous outbreaks of husk among milking cows in Britain. In some herds every animal has been more or less seriously affected. Lush pasture, particularly if rich in clover, provides optimum conditions for the development of the larvae, and the close grazing which results from strip grazing ensures the maximum pick-up of young worms. This excessive intake breaks down the resistance of adult cattle. Taylor points out that if a silage crop is taken and cattle grazed thereafter, a respite is afforded which enables the cattle to recover their resistance and clear themselves of infection.

R.T.L.

52—American Journal of Hygiene.

- a. CHAN, K. F., 1952.—“Life cycle studies on the nematode *Syphacia obvelata*.” 56 (1), 14-21.
b. CHAN, K. F., 1952.—“Chemotherapeutic studies on *Syphacia obvelata* infection in mice.” 56 (1), 22-30.

(52a) *Syphacia obvelata* of the mouse has a simple and direct life-cycle. The larvae become sexually differentiated about 48 hours after infection. The males become sexually mature in about 96 hours, attain adult size in 120 hours and disappear after copulation. The females are fertilized in 96 hours, become gravid in 192 hours and migrate from the host's caecum 264 to 336 hours after infection. Experiments to substantiate the theory of retrofection failed; it is not ruled out but the constant licking of the peri-anal region by mice suggests that in *S. obvelata* it is insignificant. Measurements of the worms at different ages are tabulated.

R.T.L.

(52b) *Syphacia obvelata* is a useful screen for new compounds which might be of value as anthelmintics for *Enterobius vermicularis*. Tetrachlorethylene proved superior to gentian violet and phenothiazine. Antibiotics especially bacitracin showed some effectiveness. Combinations of bacitracin and sulphaguanidine and of bacitracin and sulphasuxidine were extremely active. The heavy and continuous reinfections so characteristic in *Syphacia* in mice were controlled and prevented.

R.T.L.

53—American Journal of the Medical Sciences.

- a. ROSEN, E., 1952.—“Cortisone treatment of trichinosis.” 223 (1), 16-19.

(53a) Outstanding improvement occurred in the clinical condition of a moderately severe case of trichinosis as a result of treatment with cortisone or ACTH. Following intramuscular injections of three doses, each of 100 mg., at eight-hourly intervals followed by two doses at twelve-hourly intervals and then daily for the next two days there was a dramatic fall in the temperature and suppression of the symptoms. Clinical relapse followed withdrawal of the drug but its resumption for 14 days again was remarkably beneficial and the patient thereafter remained asymptomatic.

R.T.L.

54—American Journal of Tropical Medicine and Hygiene.

- a. OTTO, G. F., BROWN, H. W., BELL, Jr., S. D. & THETFORD, N. D., 1952.—“Arsenamide in the treatment of infections with the periodic form of the filaria, *Wuchereria bancrofti*.” 1 (3), 470-473.
- b. CONN, H. C. & GREENSLIT, F. S., 1952.—“Filariasis residuals in veterans with report of a case of microfilaraemia.” 1 (3), 474-476.

(54a) A reduction of approximately 99% in the total microfilarial count of 12 cases of *Wuchereria bancrofti* resulted from 12 to 15 daily intravenous injections of arsenamide (1 mg. per kg. body-weight). The blood of eight of the patients was negative at the end of the course of treatment and after one to twelve months all were negative; two of the cases developed scrotal tenderness and swelling. It is assumed therefore that the adult worms were also killed.

R.T.L.

(54b) Only two of 87 veterans discharged from the U.S. services with the diagnosis of filariasis contracted in the Pacific area had demonstrable swellings in the forearm or calf. All had palpable non-tender, discrete “pea” to “navy-bean” adenitis of the femoral, inguinal and axillary regions. Two cases are mentioned with non-symptomatic microfilaraemia due to *Wuchereria bancrofti*.

R.T.L.

55—American Midland Naturalist.

- a. SHORT, R. B., 1952.—“Sex studies on *Schistosomatium douthitti* (Cort, 1914) Price, 1931 (Trematoda: Schistosomatidae).” 47 (1), 1-54.
- b. HARGIS, Jr., W. J., 1952.—“Monogenetic trematodes of Westhampton Lake fishes. I. Two new forms.” 47 (2), 471-477.

(55a) Short has studied larvae and adults of *Schistosomatium douthitti* in laboratory-bred snails (*Limnaea palustris* and *L. stagnalis*) and in mice (*Peromyscus maniculatus*). The cercariae obtained from each snail which had been exposed to a single miracidium developed into worms of one sex. The distribution of worms in the mice in both bisexual and unisexual infections was studied at the 10th, 11th, 13th and 14th day after infection and then at longer intervals. Female worms apparently have no influence on the distribution or size of males but the presence of males causes more females to be present in the extra-hepatic portal veins and promotes growth in females. The presence or absence of one sex has no effect on the attainment of sexual maturity in the other. Females in unisexual infections produced eggs in which miracidia developed presumably parthenogenetically, as there was no evidence of any female producing spermatozoa, or of the presence of spermatozoa in any of the genital ducts. S.W.

(55b) *Urocleidus doloresae* n.sp. from *Chaenobrytus coronarius* differs from *U. attenuatus* in possessing a cirral thread and vane, and a shorter cirrus of different shape and in lacking a conspicuous vagina. *Octocmacrum microconfibula* n.sp. from *Notemigonus crysoleucas crysoleucas* differs from *O. lanceatum* in that the haptors are trapezoidal and haptoral clamps are smaller. The oral suckers are smaller but the genital sucker is larger and round to oval in shape. New techniques for preparing the trematodes are described.

R.T.L.

56—Annales Historico-Naturales Musei Nationalis Hungarici.

- a. ANDRÁSSY, I., 1952.—“Freilebende Nematoden aus dem Bükk-Gebirge.” Series nova, 2, 13-65.

(56a) Andrassy reports on the free-living eelworms occurring in samples of moss and other material collected in the Bükk-Gebirge at 126 different sites. The following species are new to science and are suitably described and illustrated, *Axonchium dudichi* n.sp., *Cephalobus (Tricephalobus) similigaster* n.sp., *Anguillulina (Ditylenchus) dipsacoidea* n.sp., *Plectus longicaudatus* var. *opisthocirculus* n.var. and *Criconema (Criconemoïdes) annulifer* forma *hygrophilum* n.f.

T.G.

57—Annales de l'Institut National de la Recherche Agronomique. Série C. Annales des Épiphyties.

- a. HOFFMANN, A., 1952.—“Répertoire analytique des espèces animales nuisibles aux cultures en France (Métropole et Départements d'Outre-Mer) ayant présenté d'intéressantes particularités en 1950.” *3* (1), 103–109.

(57a) In this annotated list of animal pests of crops in France, the helminths mentioned are: *Ditylenchus dipsaci* on onion and rye, *Heterodera marioni* on vegetable crops, especially melons and tomatoes, and *Aphelenchoides ritzema-bosi* on chrysanthemums and dahlias. R.T.L.

58—Annales de Parasitologie Humaine et Comparée.

- a. GALLIARD, H., 1952.—“Le Professeur Émile Brumpt (1877–1951).” *27* (1/3), 1–46.
 b. COUTELEN, F., BIGUET, J., DOBY, J. M. & DEBLOCK, ST., 1952.—“Le système musculaire du scolex échinococcique. Mécanismes de dévagination et d'invagination du rostre et des ventouses.” *27* (1/3), 86–104.
 c. BUTTNER, A., 1952.—“Cycle évolutif de *Ratzia joyeuxi* (E. Brumpt, 1922). (Trematoda, Opisthorchiidae). Nouvelle démonstration d'un cycle abrégé progénétique.” *27* (1/3), 105–142.
 d. DOLLFUS, R. P., 1952.—“Quelques Oxyuroidea de myriapodes.” *27* (1/3), 143–236.
 e. BRUMPT, L. C., 1952.—“Déductions cliniques tirées de cinquante cas d'ankylostomose provoquée.” *27* (1/3), 237–249.
 f. CHABAUD, A. G., 1952.—“Le genre *Dipetalonema* Diesing 1861; essai de classification.” *27* (1/3), 250–285.
 g. CANET, J., 1952.—“Nouvelles recherches sur la répartition de la filariose humaine dans le Sud de l'Indochine (1950–1951).” *27* (1/3), 286–310.
 h. STIJNS, J., 1952.—“Sur les rongeurs, hôtes naturels de *Schistosoma rodhaini* Brumpt.” *27* (4), 385–386.
 i. MARQUES, R. J., 1952.—“A propos du diagnostic de la bilharziose pulmonaire.” *27* (4), 387–393.
 j. BIOCCA, E. & CHABAUD, A. G., 1952.—“Description d'une nouvelle espèce du genre *Metathelazia* (Nematoda-Spiruroidea).” *27* (4), 394–399.
 k. CHABAUD, A. G., 1952.—“Sur un *Capillaria* du vanneau.” *27* (4), 400–406.
 l. CHABAUD, A. G., 1952.—“Identité de *Petroviprocta vigissi* Schachtachinskaja, 1951, et d'*Avioserpens gallardi* Chabaud et Campana, 1949.” *27* (4), 482–483.

(58b) Coutelen *et al.* have studied, on both living, and fixed and sectioned material, the musculature of hydatid scolices during development and during the regressive stages of vesiculation. They divide the muscles into four main groups and a number of sub-groups, each group being histologically and physiologically distinct. In addition there are a number of fibres, isolated or in small groups, the functions of which are not yet certain and the places of insertion unknown. Group 1 is subcuticular and used in evaginating the scolex; it consists of an external circular layer and an internal longitudinal layer of fibres. Group 2 controls the functions and movements of the suckers; it consists of the superficial muscles of the suckers, situated in the subcuticular layer, the functional muscles of the bodies of the suckers which are situated more deeply, and the deep muscles which control the movements of the bodies of the suckers, and consist of 6–8 large fibres. Group 3 comprises the muscles of the rostrum and hooks and Group 4 the deep muscles used in invaginating the scolex. The article is illustrated by four diagrams and eight photomicrographs, seven of which were made on living material.

S.W.

(58c) [This appears to be an illustrated and more detailed account of the paper published in *C.R. Acad. Sci. Paris*, 1952, *234*, 673–675. For abstract see Helm. Abs., 21, No. 12a.]

(58d) Dollfus reviews previous records of nematodes in myriapods and outlines the classification of the families, subfamilies and genera of the Oxyuroidea which are found in these insects. The 61 species previously described are tabulated together with the author and date of the original description, whether both sexes were found, the host, locality and reference to any subsequent redescription. The following species are described and illustrated as new: *Thelastoma gallardi* n.sp. in *Glomeris* sp., *T. glomericola* n.sp. in *G. annulata*, *T. pteroton* n.sp. in *Julus* (sensu lato) sp., *T. bulhöesi* n.sp. in *Gymnostreptus* sp., *Severianoia julicola* n.sp.

in *Julus terrestris*, *Rhigonema substruncatum* n.sp. in *Gymnostreptus* sp., *R. longicaudatum* n.sp. in *Leptodesmus paulistus*, *R. glabrum* n.sp. in *Rhinocricus cahoeirensis*, *Ichthycephalus ichthyocephaloïdes* n.sp. in *Rhinocricus* sp., *I. almeidai* n.sp. in *Hemigymnostreptus* sp., *Ransomnia christiei* n.sp. in *Rhinocricus cahoeirensis*, *Rondonema pseudonannolenou* n.sp. in *Pseudonannolene tricolor*, *Heth tuzetae* n.sp. in *P. tricolor*, *H. traefilhoi* n.sp. in *Rhinocricus padbergi*, *H. travassosi* n.sp. in *Leptodesmus jucundus*, *H. artigasi* n.sp. in *Rhinocricus* sp. and *H. perarmatum* n.sp. and *H. schubarti* n.sp. in *R. cahoeirensis*. Dollfus discusses the probability of the females described as belonging to the genus *Heth* (Cobb, 1898) and the males belonging to *Streptogaster* (Cobb, 1898) being representatives of the same genus and he describes *Heith-Streptogaster A, B, C* and *D* from *Rhinocricus* spp. He then goes on to describe *Carnoya dubia* n.sp. in *Rhinocricus* sp. and *Clementeia tubulifera* n.sp. and *C. trispiculata* n.sp. in *Leptodesmus jucundus*. In an addendum, *Brumptaeilius sclerophorus* n.g., n.sp. in *Julus* sp. is described and figured and the position of the new genus in the various classifications discussed.

S.W.

(58e) Brumpt was able to study the complete course of heavy infections with *Ancylostoma duodenale* as a result of infecting 46 cases of polyglobulism and seven cases of hypertension with an average of 400 larvae each. Therapeutically the results of the infection were favourable. The clinical symptoms of ancylostomiasis and the haematological changes are described.

P.M.B.

(58f) Chabaud proposes a phylogenetic classification of filariae based principally on cephalic structure, as an example of which he has analysed the genus *Dipetalonema*. The cephalic evolution in the genus is characterized by the migration of the papillae and an increasingly lateral elongation of the head. *Dipetalonema*, which is redefined, includes a wide range of forms from the primitive types (e.g. *D. grassi* and *D. reconditum*) approaching the spirurids, to highly specialized forms (e.g. *D. streptocerca*), a fact which supports the theory of a polyphyletic origin of the Filarioidea. A review is given of the closely related genera: *Acanthocheilonema*, *Tetrapetalonema* and *Loxodontofilaria* are regarded as synonyms; *Breinlia* is not accepted as a separate genus. *Skrjabinofilaria*, *Parlitomosa*, *Ackertia* and *Molinema* are briefly differentiated from *Dipetalonema* from existing descriptions. All species of *Dipetalonema* are placed, with a note of the characters which illustrate the evolution of the genus, under the following host types: marsupials (hosts of the most primitive species), edentates, ungulates, carnivores, rodents and insectivores, and primates (hosts of the most highly evolved species). *D. blinci* n.sp. from *Meriones libycus* from Persia is distinguished from *D. weissi* by its greater size, by the shorter oesophagus which measures 1·6 mm. in both male and female, and by a valvular structure at the end of the oesophagus. *D. persans* is redescribed and the existing description of *D. gracile* is supplemented. The various evolutionary types have been studied from the aspects of localization and duration of evolution in the intermediate host, and morphology of the larvae.

P.M.B.

(58g) In this second part of his study on the incidence of filarial infections in southern Indo-China [for abstract of the first part see Helm. Abs., 19, No. 65b], Canet tabulates the results of examining a total of 2,422 individuals in 13 different population groups, including Mois, Cambodians and Cochin-Chinese. The only species found was *Wuchereria bancrofti*. In Lower Indo-China infection was limited almost exclusively to the semi-nomadic Moi population (Stiengs and Rades) of Malayo-Polynesian origin in the hill and plateau region of the east and north-east, i.e. the western part of the Mountains of Annam, principally at altitudes of between 80 and 400 metres. In southern Indo-China filariasis decreases from east to west, i.e. from the mountains towards the plain. In southern Cochin-China and southern Cambodia there are small, isolated and probably non-autochthonous foci of light infection, of which the origin is obscure. Findings in Canet's first investigation in 1947-48 which are now confirmed are: the existence within the same area of intensely infected foci and non-infected villages; the rarity of infection in children under 10 or 12 years of age even in highly endemic centres; the variations of incidence according to sex; the rarity of clinical

manifestations (where these occur they are nearly always genito-urinary), and the nocturnal periodicity of *W. bancrofti* when it occurs in Cochin-Chinese (as was found previously in the Tonkinese) compared with the large number of microfilariae in the blood found during the afternoon in the Stiengs. It remains to be found whether the great predominance of infection in the Moi population is due to their racial isolation since bringing the disease from outside the country, to the distribution of an unknown vector or to other factors.

P.M.B.

(58h) In the faeces and scrapings of the intestinal mucosa of wild animals at Elisabethville, Stijns found the following rodents to be natural hosts of *Schistosoma rodhaini*: *Lophuromys aquilus*, *Praomys jacksoni*, *Pelomys frater* and *Mastomys coucha*. Infections were very light in contrast to the massive infections produced in experimentally infected white mice. No infection was found in other rodents or in batrachians, birds or reptiles. Twenty native labourers, employed in cleaning out streams and canals containing infected planorbids, were negative for *S. rodhaini* but were heavily infected with *S. mansoni*.

P.M.B.

(58i) Marques draws attention to the difficulty of diagnosing pulmonary infection with *Schistosoma mansoni*. At a hospital in Recife (= Pernambuco) only one case has been diagnosed during life by the finding of a single egg in the sputum, whereas 20 out of 192 examinations of schistosomiasis cases in the Department of Pathological Anatomy of the University of Recife showed pulmonary schistosomiasis. Marques considers that this number (i.e. 20 cases) would have been higher if the examinations had been made by the digestion of pulmonary tissue with caustic soda (a method used by him in more recent examinations) instead of by histological sections. He considers that specific treatment for pulmonary schistosomiasis should be given when other possibilities (e.g. mycosis, syphilis, pneumonoconiasis, tuberculosis and certain types of cancer) have been eliminated, and when evidence supplied by physical and radiological examination and by the patient himself supports such a diagnosis. In one case specific treatment with tartar emetic gave excellent results after other drugs had failed and after 24 negative examinations of the sputum. Pulmonary schistosomiasis may occur concurrently with tuberculosis and other lung infections, especially in people living under poor conditions, although there are differences of opinion on the inter-relationship of the two infections.

P.M.B.

(58j) Biocca & Chabaud describe and figure the male and female of *Metathelazia exilis* n.sp. from *Herpestes caffer* in Eritrea. It differs from other species with six conspicuous peri-oral lip-like projections in having a body-width in the female of less than 200 μ , a vagina 2 mm. in length, spicules 140 μ in length and genital papillae of Gerichter's formula 4+1+6. The authors agree with Dougherty, 1951 in considering *Metathelazia* as an independent and probably archaic group for which he proposed the new subfamily Vogeloidinae, but they consider that it should have been placed among the Spiruroidea and not in the Metastrostrongylidae on account of the diversity of its cephalic structure.

P.M.B.

(58k) Chabaud describes a male and female *Capillaria* from *Vanellus vanellus* in France. The male occurred in the oesophagus or intestine and the female in the gizzard. The female is identified as *C. vanelli* (Rudolphi, 1819) and the male as possibly an atypical form of *C. contorta*, although as the presence of the two species is considered unlikely, the specimens were probably both *C. vanelli* (Rudolphi, 1819); the males of the two species are probably very similar. Chabaud regards *C. vanelli* (Yamaguti, 1935) as a synonym of *C. contorta*, and not of *C. vanelli* (Rudolphi, 1819) as proposed by López-Neyra (1947). *C. contorta* is thus included among the parasites of Charadriiformes. *C. triloba* is added to the synonymy of *C. vanelli* (Rudolphi, 1819) which already includes *C. protracta*. The only species now listed as parasites of *V. vanellus* are *C. obtusiuscula*, *C. vanelli* (Rudolphi, 1819) and *C. contorta*.

P.M.B.

(58l) Chabaud is of the opinion that *Petroviprocta vigissi* Schachtachtinskaja, 1951 from *Nycticorax nycticorax* is identical with *Avioserpens gallardi* Chabaud & Campana, 1949

from *Egretta garzetta*. The absence of cloacal papillae is confirmed and appears to be a character differentiating *Avioserpens* from *Dracunculus*. The presence of a circular mouth in *A. taiwana* distinguishes it from *A. bifidus*.

P.M.B.

59—Annales de la Société Belge de Médecine Tropicale.

- a. FAIN, A. & LAGRANGE, E., 1952.—“Un foyer de bilharziase bovine à *Schistosoma bovis* dans l'Ituri.” **32** (1), 49–51. [Flemish summary p. 51.]
- b. LAGRANGE, E. & FAIN, A., 1952.—“Sur un nouveau prédateur des mollusques pulmonés d'eau douce transmetteurs de la bilharziase.” **32** (1), 53–55. [Flemish summary p. 55.]
- c. SCHWETZ, J., 1952.—“Sur le problème des planorbes vecteurs de la bilharziase au Lac Albert et sur les mollusques gastéropodes du même lac.” **32** (1), 57–60. [Flemish summary p. 60.]
- d. VANDENBERGHE, J., 1952.—“Note au sujet d'un cas de kyste hydatique du foie chez un indigène d'Usumbara.” **32** (1), 109–111. [Flemish summary p. 110.]

(59a) Fain & Lagrange report a focus of schistosomiasis bovis in the Ituri region of the Belgian Congo. At autopsy many adult worms were recovered from 12 out of 14 cattle at Bunia, from 5 examined at Irumu and from 2 out of 3 at Nizi. Schistosomiasis haematobia is not present in this district but schistosomiasis mansoni is widespread. The difficulty of diagnosing schistosomiasis bovis by faecal examination is emphasized.

P.M.B.

(59b) In experimental work on the biological control of schistosome intermediate hosts, Lagrange & Fain found that a considerable number of *Biomphalaria alexandrina pfeifferi* were eaten by the fresh-water crab, *Potamon didieri*, but only a few by *Xenopus laevis*, *Rana fuscigula* and *Bufo regularis*.

P.M.B.

(59c) Schwetz criticizes Fain's statement in *Ann. Soc. belge Méd. trop.*, 1951, **31**, 423–439 [for abstract see Helm. Abs., **20**, No. 333a] that the fluviatile mollusc, *Biomphalaria alexandrina pfeifferi*, is the principal vector of schistosomiasis mansoni around Lake Albert. Schwetz is convinced that the very heavy infection of the lakeside population, particularly of those associated with the fisheries, is due to lacustrine molluscs. Infected persons further away from the lake were found in all cases to have visited the lake, principally for fishing. He considers that *Planorbis choanomphalus* and not *P. stanleyi* is the correct name of the lacustrine species present there, and expresses doubt at Fain's recording of *Bulinus mutandaensis* and *Physopsis nasuta* from Lake Albert.

P.M.B.

60—Annals of Applied Biology.

- a. FRANKLIN, M. T., 1952.—“A disease of *Scabiosa caucasica* caused by the nematode *Aphelenchoides blastophthorus* n.sp.” **39** (1), 54–60.
- b. GOODEY, J. B., 1952.—“Investigations into the host ranges of *Ditylenchus destructor* and *D. dipsaci*.” **39** (2), 221–228.
- c. GRAINGER, J., 1952.—“Recent work in Ayrshire on the control of potato-root eelworm.” **39** (2), 277–279.

(60a) A species of *Aphelenchoides* somewhat resembling *A. parietinus*, but differing from it in certain morphological details, has been found causing blindness and consequent loss of flower heads in the cultivated Caucasian scabious variety Clive Greaves. Other damage includes distortion of leaves and malformation of lightly infested inflorescences. The nematodes were found in the leaf axils and in the crown buds living both ecto- and endoparasitically. They are fully described and named *A. blastophthorus* n.sp. Artificial infestations resulting in damage were set up in Caucasian scabious and in teazel.

M.T.F.

(60b) Using *Ditylenchus destructor* and a narcissus race of *D. dipsaci*, J. B. Goodey differentiates between the susceptibility to attack by these two eelworms of several plants hitherto recorded as hosts of *D. dipsaci*. *Stachys palustris* is a new host record for *D. destructor*.

J.B.G.

(60c) [Full details of all the work reported in this paper are given in Research Bulletins Nos. 10 & 11 of the West of Scotland Agricultural College. For abstracts see Helm. Abs., 20, Nos. 44a, 134a.]

61—Annals of Tropical Medicine and Parasitology.

- a. ONABAMIRO, S. D., 1952.—“On the diurnal migration and seasonal fluctuation in the numbers of *Thermocyclops nigerianus* Kiefer in a Nigerian pond.” **46** (1), 38-47.
- b. STANDEN, O. D., 1952.—“Experimental infection of *Australorbis glabratus* with *Schistosoma mansoni*. I.—Individual and mass infection of snails, and the relationship of infection to temperature and season.” **46** (1), 48-53.
- c. BOWESMAN, C., 1952.—“Cysticercosis in West Africa.” **46** (1), 101-102.

(61a) *Thermocyclops nigerianus*, the chief vector of *Dracunculus medinensis* in Nigeria, shows rhythmical, diurnal, vertical migration. In the afternoon and evening migration takes place from the bottom and the surface of ponds to an intermediate level. Although sunlight is an important factor the movements are also associated with those of the rotifers on which they feed. The number of *T. nigerianus* is highest at about nine-week intervals. R.T.L.

(61b) Standen reports on how the infection and mortality rates in *Australorbis glabratus* 5 to 10 weeks old, exposed to an Egyptian strain of *Schistosoma mansoni*, are influenced by the methods of exposure, mean yearly water temperatures of the aquaria and the season. The rate of infection was highest in the snails exposed individually to six miracidia in 2 c.c. of water at 28°C. in a 3 in. × 1 in. specimen tube and lowest when the snails were exposed in an aquarium allowing 500 c.c. of water per snail. A water temperature of 26°C. to 28°C. is necessary for the culture of *S. mansoni* in *A. glabratus*. No seasonal rhythm of infection was detected but the infection rate was markedly influenced by the prevailing temperature. Mortality rate is not directly related to intensity of infection but coincides with a fall in the monthly mean temperatures. P.L.I.R.

(61c) The occurrence of calcified *Cysticercus cellulosae* in a native in the Gold Coast is recorded. This is apparently the first time the infection has been reported from West Africa.

R.T.L.

62—Archives d'Anatomie Microscopique et de Morphologie Expérimentale. Paris.

- a. DELAVAL, R., 1952.—“Étude cytologique des acides nucléiques chez un nématode libre (*Rhabditis elegans* Maupas 1900).” **41** (1), 41-68.

(62a) Delavault has studied in great detail the distribution of nucleic acids during gametogenesis in hermaphrodites and males, and fertilization and early development of *Rhabditis elegans*. Material fixed in either Zenker's or Helly's fixatives gave better results than that fixed in Carnoy's fluid; sections were stained by the Feulgen reaction, iron haematoxylin and eosin, or the Unna-Pappenheim technique which allowed both qualitative observations and spectrophotometric measurements to be made. The difficulties inherent in the material and the limitations imposed by the techniques are discussed. During oogenesis the distribution of ribonucleic acids in the cytoplasm remains homogeneous throughout the growth of the cells, but during spermatogenesis the pyrinophilic substances become localized in definite zones in the cells. There appears to be a dilution, if not a diminution of the total amount of ribonucleic acid in the oocyte, but in the spermatocyte there is neither diminution nor dilution except possibly just at the time of mitosis when the chromatin increases at the expense of the cytoplasmic ribonucleic acids. It appears that there may be an increase in the total desoxyribonucleic acid in the nucleus during growth and a diminution at pachytene followed by a readjustment, but only further work, on more favourable material, will clarify this. S.W.

63—Archives de l'Institut Pasteur d'Algérie.

- a. CHOQUETTE, L. P. E., GAYOT, G. & POUL, J., 1952.—“Note sur les helminthes trouvés chez le chien à Alger.” *30* (1), 47–50.
- b. CHOQUETTE, L. P. E. & GAYOT, G., 1952.—“*Tenuiproboscis sergenti* nov.sp., acanthocephale trouvé chez le chien à Alger.” *30* (1), 51–54.

(63a) From autopsies on 24 dogs in Algiers, the following helminths were obtained: *Dipylidium caninum*, *Taenia pisiformis*, *T. hydatigena*, *Echinococcus granulosus*, *Toxascaris leonina*, *Toxocara canis*, *Dochmooides stenocephala*, *Ricularia affinis*, *Spirocercus sanguinolenta*, microfilariae of *Dirofilaria immitis* and an acanthocephalan named *Tenuiproboscis sergenti* n.sp. which is described in the succeeding paper [see following abstract]. R.T.L.

(63b) *Tenuiproboscis sergenti* n.sp. obtained at autopsy on a dog in Algiers differs from *T. misgurni* in the number and dimensions of the hooks, the length and breadth of the sheath, the length of the lemnisci, the dimensions of the testes, prostatic glands, eggs and embryos, and the morphology of the uterus. Its occurrence in this host was obviously accidental. The normal host is probably a fish which the dog had eaten. R.T.L.

64—Atti della Accademia Nazionale dei Lincei. Rendiconti. Classe di Scienze Fisiche, Matematiche e Naturali.

- a. BIOCCA, E., 1952.—“Ricerche sistematiche su alcune specie del genere *Ancylostoma* (Dubini, 1843): *Ancylostoma brasiliense* (de Faria, 1910) e *Ancylostoma ceylanicum* (Looss, 1911). Nota I.” *Serie 8, 12* (2), 185–188.
- b. BIOCCA, E., 1952.—“Ricerche sistematiche su alcune specie del genere *Ancylostoma* (Dubini, 1843): *Ancylostoma duodenale* (Dubini, 1843) e *Ancylostoma paraduodenale* Biocca, 1951. Nota II.” *Serie 8, 12* (3), 334–336.

(64a) [The information contained in this paper is substantially the same as that which appeared in *J. Helminth.*, 1951, 25, 1–10. For abstract see Helm. Abs., 20, No. 103a.]

(64b) [The information contained in this paper is substantially the same as that which appeared in *J. Helminth.*, 1951, 25, 11–18. For abstract see Helm. Abs., 20, No. 103b.]

65—Australian Journal of Agricultural Research.

- a. ROBERTS, F. H. S., O'SULLIVAN, P. J. & RIEK, R. F., 1952.—“The epidemiology of parasitic gastro-enteritis of cattle.” *3* (2), 187–226.

(65a) In Queensland pathogenic infections of cattle, due to helminths, are chiefly confined to those animals of 3 to 24 months of age. In dairy cattle the most susceptible period is between 4 and 12 months and in beef cattle during the few months following weaning. A strong resistance develops during the first 18 months, especially for *Cooperia* spp. infections. It is strongest against *Bunostomum phlebotomum* and weakest against *Haemonchus contortus*. Outbreaks of parasitic gastro-enteritis occur under conditions of high larval prevalence and poor nutrition. R.T.L.

66—Australian Journal of Scientific Research. Series B, Biological Sciences.

- a. ROGERS, W. P., 1952.—“Nitrogen catabolism in nematode parasites.” *5* (1), 210–222.

(66a) Rogers found that peptides, urea and ammonia were the chief soluble nitrogenous compounds formed in non-nutritive media containing streptomycin and penicillin, in which *Nematodirus* spp. or *Ascaridia galli* had been maintained for 24 hours. Under anaerobic conditions the amount of soluble nitrogenous material produced by *Nematodirus* spp. increased by 40%. Studies on the intermediary metabolism of nitrogen compounds in homogenates prepared from the parasites suggested that urea was formed by a citrulline cycle. Purine derivatives were actively catabolised by homogenates of young *Ascaridia galli* and the author suggests that purine breakdown in these parasites took place by the action of uricase, allantoinase, allantoicase and urease. W.P.R.

67—Australian Veterinary Journal.

- a. BANKS, A. W., 1952.—“Some animal parasites of the Northern Territory, and some remarks.” *28* (4), 108-110.
- b. ANON., 1952.—“The use of the nasopharyngeal tube in unbroken horses.” *28* (4), 111.
- c. OLDS, R. J., 1952.—“*Gnathostoma spinigerum* (Owen, 1836) in cats in North Queensland.” *28* (5), 124-126.
- d. MULES, M. W., 1952.—“A technique for the collection of samples of uncontaminated faeces from sheep.” *28* (5), 126.

(67a) The known parasites of domestic animals in the Northern Territory of Australia are listed. In some cases the diagnoses are tentative. R.T.L.

(67b) The replacement of the drenching bottle by the nasopharyngeal rubber tube is advocated as a simple, easy and rapid technique for the periodical drenching of unbroken horses with phenothiazine. R.T.L.

(67c) Olds describes five cases of *Gnathostoma spinigerum* in cats at Townsville, Queensland. Stomach tumours containing adult worms occurred in three. In the other two, immature worms were found in the diaphragm and stomach wall of one and in the liver of the other. Lesions were present in the liver, lungs and diaphragm. No signs of ill health were noted in three cases and death in the other two was probably due to other causes. Olds concludes that this parasite may be less consistently pathogenic than was supposed by Chandler. P.M.B.

(67d) A simple piece of apparatus for obtaining samples of faeces from the rectum of sheep can be made from a piece of Pyrex glass tubing, 15·5 cm. long with an internal bore of 19 mm., by sealing one end in a flame, reducing the pointed end to an obtuse point and then grinding with an emery wheel an oval hole with the edge not more than 2 cm. from the point. Three small spears of glass are then fused within the closed, pointed end which is filled with wax of a high melting point up to the edge of the oval hole while the tube is held at an angle of 45° in a clamp. A rubber bung closes the open end. When the tube is inserted into the rectum with a continuous semi-rotary motion the pelleted faeces collect in its lumen and can be removed from the stoppered end afterwards. R.T.L.

68—British Journal of Ophthalmology.

- a. SARKIES, J. W. R., 1952.—“Ocular onchocerciasis.” *36* (2), 81-99.

(68a) An attempt was made to assess the importance and diagnostic value of early ocular manifestations in 319 proved cases of onchocerciasis in the Lower Volta district of the Gold Coast; of these 288 were judged by their own standards to be fit. Microfilariae occurred in the aqueous humour in 94 cases, 44 of which had no demonstrable lesions in the eye. Numular keratitis, with or without microfilariae in the aqueous humour, occurred in 88 cases. Other lesions found were iridocyclitis in 15, choroido-retinal degeneration in 11, lens sclerosis in 11, optic atrophy in 7 and atrophy of the iris (with no other lesions) in one. In individual cases damage to the eyes can probably be prevented or arrested by the use of Antrypol, followed by tetrazan if skin smears still show microfilariae, although the effect is probably only temporary. Large doses of riboflavine, in cases in which the visual acuity was diminished as a result of lesions of the posterior segment, produced functional improvement in early cases; some improvement may be expected when retinal damage and early optic atrophy occur. P.M.B.

69—British Medical Journal.

- a. HAWKING, F., 1952.—“A histological study of onchocerciasis treated with tetrazan.” Year 1952, *1* (4766), 992-994.
- b. McFADZEAN, J. A., 1952.—“Investigations into the cause of microfilarial periodicity.” Year 1952, *1* (4768), 1106-1109.
- c. GELFAND, M. & BARNETT, E. E., 1952.—“A peculiar syndrome of ‘bladder paralysis’ in natives of South Central Africa.” Year 1952, *1* (4769), 1172-1173.

- a. HASEEB, M. A., 1952.—“Nilodin” in treatment of *Schistosoma haematobium*. Year 1952, 1 (4772), 1331-1332.

(69a) Histological study of nodules and skin biopsies made on about 50 cases of onchocerciasis before, during and after treatment with tetrazan gave no indication that the drug had any adverse effect on the adult worms, but the microfilariae in the skin showed evidence of degeneration and destruction and were often foci of intense acute inflammation. Tetrazan apparently opsonizes some of the microfilariae, exciting an acute allergic reaction which can be used as an additional means of diagnosis. The unharmed adults replenish the skin with fresh microfilariae when treatment is discontinued and so the drug gives only temporary relief.

R.T.L.

(69b) An unidentified filariid worm living in the fascial planes of the hamstring muscles of *Cercopithecus aethiops johnstoni* gives birth to unsheathed microfilariae which exhibit nocturnal periodicity. When the oxygen concentration of inspired gases at atmospheric pressure is increased to above 38% or decreased to below 13% there is a great increase in the number of microfilariae in the peripheral blood in the daytime but only a small increase at night when the normal count is high. Increase in the carbon dioxide, vasodilatation by hexamethonium iodide given intravenously, and variation in temperature, pulse rate and respiratory rate have no significant effect. No relation could be demonstrated experimentally between the cyclic changes in the concentration of phosphate in the blood and urine and the number of microfilariae in the blood.

R.T.L.

(69c) In Southern Rhodesia an increasing number of male Africans suffering from urinary schistosomiasis have exhibited a transient form of bladder palsy with overflow incontinence. No obstructive lesion could be found. Its association with schistosome infection may have been accidental.

R.T.L.

(69d) Miracil-D (Nilodin) was tolerated by one only out of seven Sudanese cases of urinary schistosomiasis. The others showed signs of toxicity which were so severe on the third day that treatment could not be completed. This intolerance is a deterrent to its use in the Sudan.

R.T.L.

70—British Veterinary Journal.

- a. INNES, J. R. M., SHOHO, C. & PERUMAL PILLAI, C., 1952.—“Epizootic cerebro-spinal nematodiasis or setariasis. Focal encephalomyelomalacia in animals in the Orient caused by immature *Setaria digitata*: a disease which may occur in animals in other parts of the world.” 108 (3), 71-88.

(70a) A chronological account of the developments in identification of a lumbar paralysis caused by the migration of immature *Setaria digitata* in unnatural hosts, is followed by an illustrated description of the nature and distribution of the lesions in the nervous system. The experimental production of cerebro-spinal nematodiasis by Japanese workers is summarized and the probability that the disease may also occur in animals and even in man in other parts of the world is discussed.

R.T.L.

71—Bulletin Biologique de la France et de la Belgique.

- a. NIGON, V. & ROBERT, M., 1952.—“Contribution à l'étude de la gaméto-génèse chez *Parascaris equorum* Goeze. I. La formation des tétrades durant l'ovogénèse de la variété *univalens*.” 86 (1), 101-104.

(71a) Nigon & Robert describe the processes leading up to the formation of tetrads during ovogenesis in *Parascaris equorum* var. *univalens*; their observations were made on material stained by the Feulgen reaction or by methyl-pyronine green. The resting nucleus contains a shadow-like patch which is feebly Feulgen-positive indicating that desoxyribonucleic acid may be present in structures other than the chromosomes. This “shadow” remains visible

during the appearance and coalescence of the chromatin granules to form chromosomes, the nucleolus lying close beside it. The authors observed with surprise the formation of eight "primary chromosomes" identical with those of *P. equorum* var. *bivalens*. S.W.

72—Bulletin of the British Museum (Natural History). Zoology.

- a. MARKOWSKI, S., 1952.—"The cestodes of seals from the Antarctic." 1 (7), 123-150.

(72a) Markowski reviews and redescribes the twelve species of Pseudophyllidean tapeworms which have been found in the Weddell seal, leopard seal, crabeater seal, elephant seal and Ross seal. He concludes that there are nine valid species (including one new species) belonging to four genera, two of which are new. In *Baylisia baylisi* n.g., n.sp. from *Lobodon carcinophagus*, normal segmentation is not distinct; the genital organs and openings are in double sets situated ventrally on both sides of the segment; the testes lie in a single layer; the ovary is ramified; the excretory system is in the cortical parenchyma and the longitudinal muscles form a thick coat. *Bayliella* n.g. is created for *Bothrioccephalus tectus* from *Macrorhinus leoninus*. The genus can be distinguished from *Bothrioccephalus* and *Diphyllobothrium* by differences in the scolex, distribution of testes and development of the muscles. *Diphyllobothrium perfoliatum* Railliet & Henry, 1912 is transferred to *Glandicephalus* as *G. perfoliatus* n.comb.

R.T.L.

73—Bulletin de l'Institut Océanographique. Monaco.

- a. EUZET, L., 1952.—"Sur *Trilocularia acanthiae-vulgaris* (Olsson 1867) Cestoda Tetraphyllidea." 49, No. 1010, 6 pp.

(73a) From a study of material from *Acanthias vulgaris* caught near Sète, Euzet concludes that the cestode described by Lühe in 1902 as *Urogonoporus armatus* is the free proglottid of *Trilocularia acanthiae-vulgaris* Olsson, 1867. He describes its morphology and discusses its synonymy. *Trilocularia* is retained as a valid genus. This appears to be the first record of this cestode from the Mediterranean.

P.M.B.

74—Bulletin de la Société de Pathologie Exotique.

- a. GRENIER, P. & TAUFFLIEB, R., 1952.—"Remarques sur les techniques modernes de montage rapide des insectes et l'utilisation des résines polyvinyliques en microscopie." 45 (2), 208-212.
 b. SCHWETZ, J., 1952.—"Nomenclature simplifiée des mollusques africains vecteurs de bilharzioses. Suggestions pour une discussion raisonnée sur une future classification." 45 (3), 381-388.

(74a) Grenier & Taufflieb review the mounting media prepared from natural resins and describe the technique using synthetic resin mountants made from mixtures of polyvinyl alcohols, phenol and lactic acid. These have the advantage that dehydration and clearing can be eliminated, especially with small specimens. In the discussion Deschiens states that these techniques should prove valuable for mounting larvae of trematodes and nematodes. S.W.

(74b) Suggestions are made to the organisers of a conference on schistosomiasis to be held during 1952. Schwetz urges the suppression of many names of molluscan intermediaries which apply to the same species or variety in different areas and the modification of those remaining, to form a simple and uniform classification which does not vary from one district to another. He considers that in the Planorbidae ecology and anatomy are of greater importance in identification than are the external characters of the shell. From recent research in the Congo and Uganda he is convinced that the variations of the shell are dependent on habitat: two morphologically different types, when reared in the same environment, developed similar shell characters, though from the few generations studied it was impossible to assess anatomical changes. Schwetz emphasizes the need for co-operation between snail ecologists and experts on schistosomiasis, and criticizes the practice of inexperienced collectors sending snails elsewhere for identification, as, under these conditions, no study of the habitat can be made. P.M.B.

75—California Agriculture.

- a. ALLEN, M. W., 1952.—“Root-knot and root-lesion nematodes. Soil fumigation reduces infestations but can not be used in growing orchards or vineyards.” *6* (5), 8–9, 14.
- b. ALLEN, M. W. & RASKI, D. J., 1952.—“Nematodes on strawberries. Preplanting soil fumigation controls root-lesion nematodes in experiments with strawberries on old apple land.” *6* (6), 3, 14.

(75a) Of fruit and nut crops, the fig, grape, cherry, peach, plum, almond, walnut and olive are most frequently injured by root-knot nematodes. Available soil fumigants are highly phytotoxic and cannot be applied successfully to growing plants, although they are effective in reducing the nematode population of soils prior to the planting of susceptible trees or vines. If D-D is used, 400 to 600 lb. per acre should be applied to an area 4 ft. to 8 ft. in diameter at the planting site two to four weeks before replanting. Care should be taken to avoid the infection of clean land by contaminated equipment and only stock from nematode-free soil should be planted. Recently a number of more or less resistant root-stocks have been introduced. The Shalil peach has largely replaced the Lovell root-stock but has since proved to be susceptible to one of the five species into which the root-knot nematodes have been split. S-37, a flowering peach hybrid root-stock, has proved successful in some areas where the Shalil root-stock has failed but in one locality it has been found heavily infected. Several grape root-stocks including Dogridge, Salt Creek, and the hybrid root-stocks 1613 and 1616 have shown some degree of resistance but this varies in different localities and fields. R.T.L.

(75b) The roots of Shasta strawberries in California are frequently injured by a disease complex, of which the primary cause has not yet been definitely established. Although certain pathogenic fungi are nearly always present, in some cases *Pratylenchus* sp. have been found associated with the diseased roots and a high population will usually kill most of the feeder roots by massive invasion of the tissues. Chemical control by soil fumigation prior to planting has not been satisfactory as the dosage required was usually fatal to the plants. Experiments are cited to show that satisfactory nematode control can be obtained with CBP-55 (technical chlorobromopropene 55%) in split treatment of 30 gallons per acre, and with D-D mixture at 40 and 80 gallons per acre. A single application of D-D mixture at 40 gallons per acre led to considerable improvement in plant growth which was attributed to control of the nematodes involved in the root-rot complex. R.T.L.

76—California Fish and Game.

- a. GULLION, G. W., 1952.—“Some diseases and parasites of American coots.” *38* (3), 421–423.

(76a) In an American coot (*Fulica americana*) which died in captivity, nearly 70% of the lining of the gizzard had haemorrhagic burrows caused by *Amidostomum raillieti*. R.T.L.

77—Canadian Journal of Comparative Medicine.

- a. OLIVER, W. T., 1952.—“Amidostomiasis in domestic geese.” *16* (6), 235–237.

(77a) An outbreak of infection with *Amidostomum anseris* is described in a flock of geese in Ontario. This is the first instance of this infection to be reported from Canada. P.M.B.

78—Ceylon Journal of Science. Section B. Zoology.

- a. SILVA, N. N. de, 1952.—“A re-description of the trematode *Haplorchis pearsoni* Fernando, 1933, with special reference to its systematic position.” *25* (1), 11–18.
- b. FERNANDO, W., 1952.—“Studies on the Tremocephalida of Ceylon. 1. *Caridinicola platei* sp. nov.” *25* (1), 19–22.
- c. FERNANDO, W., 1952.—“Studies on the Tremocephalida of Ceylon. 2. *Monodiscus macbridei* sp. nov.” *25* (1), 23–27.
- d. FERNANDO, E. F. W., 1952.—“*Leucochloridium ceylonicum* sp. nov. provis., a trematode from the Ceylon jungle fowl.” *25* (1), 55–58.

- e. CRUSZ, H., 1952.—“The nature, incidence and geographical distribution of amphistome infestations in neat cattle, buffaloes and goats in Ceylon.” 25 (1), 59-73.

(78a) With a view to clarifying its systematic position, de Silva gives a detailed redescription, particularly of the genital atrium and its associated structures, of *Haplorchis pearsoni*, a trematode obtained by Fernando (1933) from the brown fish owl, *Ketupa zeylonensis zeylonensis*. The genus *Haplorchis* is briefly reviewed and the separation of its various species into the two subfamilies *Haplorchiinae* and *Monorchotreminae* is discouraged. De Silva regards the “pre-pharynx oesophageal ratio” as a better criterion for specific diagnosis than details of acetabular armature. *Haplorchis pearsoni* is considered to be a valid species and a tabulated key to the various species of the genus is given. H.C.

(78b) A reinvestigation of the anatomy of the species of *Caridinicola* [Temnocephaloidea] which is found in the branchial cavities of Atyid prawns which are widespread in the streams, rivers and tanks in Ceylon has enabled Fernando to differentiate it from *C. indica*. It is distinguished by possessing a single testis on each side of the body and a pointed cirrus. There are no ganglia at the bases of the tentacles. It is named *C. platei* n.sp. and two varieties are recognized, viz., *C. platei* var. *holocotyle* which has a horseshoe-shaped posterior adhesive organ, a pair of well developed eyes and a somewhat blunt and large cirrus; and *C. platei* var. *schizocotyle* in which the adhesive organ is double, the eyes are more or less degenerate and the cirrus is narrow and pointed. There are five plates with 18 illustrations. R.T.L.

(78c) Fernando adds a second species to *Monodiscus*. It is a small temnocephalid occurring in the branchial cavities of Atyid prawns collected from a stream at Yakkala, Ceylon. *M. macbridei* n.sp. has well developed anterior adhesive organs at the bases of the tentacles. The posterior adhesive organ is round and flat and has three types of glands. The oral aperture and the (true) mouth are terminal, the pharynx is round, the reservoir canal is long and the tip of the cirrus is more or less blunted. There are six plates with 16 illustrations. R.T.L.

(78d) Fernando describes a trematode from the cloaca of the Ceylon jungle fowl, *Gallus lafayetti*. Since this fluke resembles *Leucochloridium japonicum* but differs from it in the extent of the vitellaria and the small size of the eggs, it is taken to be a new species and provisionally named *Leucochloridium ceylonicum*. H.C.

(78e) From a close study of 701 slaughtered neat cattle, buffaloes and goats, drawn from various parts of Ceylon, Crusz found that 67·9% of these ruminants were infested with amphistomes (73·1% neat cattle, 92·7% buffaloes and 15% goats). The flukes belonged to at least four genera: *Gastrothylax*, *Gigantocotyle*, *Paramphistomum* and *Calicophoron*. Details regarding habits and habitats of the hosts are briefly discussed. The frequency and intensity of infestation with each of these types of amphistome in respect of each type of host are also discussed. Infestations of the liver with *Gigantocotyle explanatum* and of the stomach with *Gastrothylax* spp. were found to be the most common and the heaviest, especially in buffaloes. Amphistomiasis in neat cattle and goats appeared to be milder in character. While *Gastrothylax*, *Paramphistomum* and *Calicophoron* showed an island-wide distribution, *Gigantocotyle* proved to be essentially a dry zone parasite. The evidence from geographical distribution lends support to Näsmark's contention, based on other evidence, that *Gigantocotyle explanatum* is generically and specifically distinct from *Paramphistomum cervi*. H.C.

79—Comptes Rendus des Séances de l'Académie des Sciences. Paris.

- a. CAVIER, R. & SAVEL, J., 1952.—“Étude des conditions de vie de l'ascaris du porc, *Ascaris lumbricoides* Linné 1758, hors de l'organisme de l'hôte.” 234 (11), 1216-1218.
- b. CAVIER, R. & SAVEL, J., 1952.—“La survie *in vitro* en milieu aseptique, de l'ascaris du porc, *Ascaris lumbricoides* Linné 1758.” 234 (13), 1403-1405.
- c. BALTAZARD, M., CHABAUD, A. G. & MINOU, A., 1952.—“Cycle évolutif d'une filaire parasite de mérion.” 234 (21), 2115-2117.

- d. CAVIER, R. & SAVEL, J., 1952.—“La synthèse du glycogène, à partir de quelques glucides et de certains de leurs dérivés, par l'ascaris du porc, *Ascaris lumbricoides* Linné 1758.” **234** (26), 2562-2564.
- e. NIGON, V., 1952.—“Modifications expérimentales de la proportion des sexes chez un nématode pseudogame.” **234** (26), 2568-2570.

(79a) Cavier & Savel were able to maintain *Ascaris lumbricoides* in the laboratory for up to 22 days (average 19 days) in a modified Baldwin's solution (NaCl 0·8%, KCl 0·02%, CaCl₂ 0·02%, MgCl₂ 0·01%, NaHCO₃ 0·15%, glucose 0·5%), with a pH of 8·4-8·6. The medium must be changed every 24 hours. The volume of the solution (within the limits of 50 c.c. and 500 c.c. for each Ascaris) is not important, provided it is renewed every 24 hours. The optimum sodium chloride concentration appears to be 1% and the optimum pH about 8·0, although this decreases considerably during 24 hours reaching pH 7·0-7·4, or, in a medium containing glucose, pH 5·8-7·1.

P.M.B.

(79b) To study the metabolism of *Ascaris lumbricoides* in a sterile medium, specimens were maintained in 500 c.c. of Bunge's glucose solution or modified Baldwin's solution [see preceding abstract] to which were added various antiseptics, sulphonamides, and antibiotics of natural origin. The solution was kept at a temperature of 38°C. and was changed every 24 hours. The only substances which prevented the development of bacteria and were non-toxic to Ascaris were sulphadiazine (*p*-aminophenylsulphamido-2 pyrimidine) and Gantrisin (5-*p*-aminobenzenesulphonamido-3:4-dimethyl iso-oxazole). There was only a slight decrease in the pH value in the presence of either of these two substances.

P.M.B.

(79c) In the Méched region of Iran, *Dipetalonema blinci* has been found in *Meriones libycus* as a natural infection. Its life-cycle in *Rhipicephalus* sp. and in *Ornithodoros tar-takovskyi* resembles that of *D. reconditum* in the dog flea and of *D. grassii* in *Rhipicephalus sanguineus*.

R.T.L.

(79d) Cavier & Savel have shown, by ligaturing the mouth and anal openings of male Ascaris, that carbohydrates are not absorbed through the cuticle. They have also demonstrated that glucose, fructose, sorbinose, maltose and sucrose are utilized in the synthesis of glycogen but that mannose, galactose, lactose and polyhydric alcohols are not. The presence of vitamins accelerates glycogen formation.

S.W.

(79e) Nigon has continued his work on sex determination in free-living nematodes [for abstract of previous work see Helm. Abs., 19, No. 146a]. Using *Rhabditis belari*, he has compared the proportions of males in the offspring of single pairs isolated in a standard medium with those of pairs isolated in media to which an extract, prepared from media in which nematodes had previously been cultured, was added in varying concentrations. Details are given of the preparation of this extract. Counts were made at regular intervals and the results during each two-day period up to ten days combined. A table sets out the figures obtained in standard medium, and in medium to which 0·4%, 1% or 1·5% of extract had been added, for the 1st and 2nd, 3rd and 4th, 5th and 6th, 7th and 8th, and 9th and 10th days respectively. The effect of the presence of extract in lowering the proportion of males was most striking during the first two days and there appears to be a quantitative relation between the concentration of extract and the number of males.

S.W.

80—Comptes Rendus des Séances de la Société de Biologie. Paris.

- a. BRUMPT, L. C., 1952.—“Le mode d'action de la diéthylcarbamazine sur les filaires.” **146** (3/4), 209-211.

(80a) Brumpt reviews the work which has been done on the effect of diethylcarbamazine on filariae. His observations are not entirely in agreement with those of other workers and he is of the opinion that its action is vermicidal rather than vermifugal, causing first an excitation of the worm, then a loss of mobility, which allows the reticulo-endothelial system to act

upon it. He suggests that treatment should be extended for 20-30 days instead of two 10-day treatments with an interval of 10 days between, and that the administration of antihistamines may lessen its effectiveness.

S.W.

81—Cornell Veterinarian.

- a. KENNEDY, P. C., WHITLOCK, J. H. & ROBERTS, S. J., 1952.—“Neurofilariosis, a paralytic disease of sheep: I. Introduction, symptomatology, and pathology.” *42* (1), 118-124.
- b. WHITLOCK, J. H., 1952.—“Neurofilariosis, a paralytic disease of sheep: II. *Neurofilaria cornellensis* n.g., n.sp. (*Nematoda*, *Filarioidea*), a new nematode parasite from the spinal cord of sheep.” *42* (1), 125-132.
- c. KRULL, W. H. & MAPES, C. R., 1952.—“Studies on the biology of *Dicrocoelium dendriticum* (Rudolphi, 1819) Looss, 1899 (Trematoda: Dicrocoeliidae), including its relation to the intermediate host, *Cionella lubrica* (Müller). III. Observations on the slimeballs of *Dicrocoelium dendriticum*.” *42* (2), 253-276.
- d. KRULL, W. H. & MAPES, C. R., 1952.—“Studies on the biology of *Dicrocoelium dendriticum* (Rudolphi, 1819) Looss, 1899 (Trematoda: Dicrocoeliidae), including its relation to the intermediate host, *Cionella lubrica* (Müller). IV. Infection experiments involving definitive hosts.” *42* (2), 277-285.

(81a) Fragments of female specimens of *Neurofilaria cornellensis* n.g., n.sp. [for abstract of description see No. 81b below] were recovered from the central nervous system of lambs. The animals showed symptoms of paralysis and lameness and were from Yates County (New York) and from New Hampshire. Some sections from the brain and spinal cord showed signs of recent haemorrhage and others demyelination, swelling, fragmentation of the axis cylinder, and gliosis. Attention is drawn to the clinical and pathological similarities between this disease and the lumbar paralysis observed in sheep, goats and horses in Japan, Korea and Ceylon.

P.M.B.

(81b) Whitlock describes and figures fragments of a filarial worm which he has named *Neurofilaria cornellensis* n.g., n.sp. from the brain and spinal cord of lambs in parts of the U.S.A. [see preceding abstract]. Females only have been found. It is distinguished from *Squamofilaria*, which occurs only in birds, by the absence of cuticular papillae on the body, and by the stoma which is embedded in the oesophagus and has a distinct non-cuticular projections into its cavity; there are numerous strong fibres connecting the rim of a cap-like cuticular structure covering the anterior end to a prominent ridge on the oesophagus. Mature females are probably at least 20 mm. in length.

P.M.B.

(81c) Krull & Mapes have continued their work on *Dicrocoelium dendriticum* [for abstracts of previous parts see Helm. Abs., 20, Nos. 403b and 403c]. Naturally infected snails were kept in petri dish terraria for observations to be made on slimeball formation. There is some variation in shape and size of the slimeballs but they are usually about 1.5 mm. in diameter, spherical, and contain 100-400 cercariae embedded in a central matrix which is surrounded by a layer of clear gelatinous material. Their formation appears to be stimulated by a drop in temperature and they are produced by at least two methods under experimental conditions. In the first a fully developed slimeball is expelled through the respiratory pore; in the second the natural slime from the snail is used, the cercariae accumulating in it gradually and forming the ball. A very moist environment was found to liquefy the slimeballs and free the cercariae which died. A very dry environment caused shrinkage and distortion but the length of survival of the cercariae was not determined.

S.W.

(81d) In this fourth part of their work on *Dicrocoelium dendriticum*, Krull & Mapes have tried to determine the mode of infection of the definitive hosts. Two lambs were fed washed, and two unwashed grass from infected pastures; two were given the screened washings from the grass and the seventh lamb was given the screenings. Both the lambs fed on unwashed grass and one fed on washed grass became infected. Five lambs and a number of mice and rabbits fed on slimeballs did not become infected, nor did lambs, mice or rabbits which had been given infected snails. Nearly 130 arthropods and earthworms were examined as possible second intermediaries, but none was found to be infected.

S.W.

82—Cyprus Medical Journal.

- a. ROE, R. J., 1952.—“Diseases communicable from animals to man.” [Summary of lecture to Post-Graduate Refresher Course for General Practitioners, Nicosia.] 5 (4), 809-812.

(82a) Hydatid is very prevalent in cattle, sheep, goats and pigs in Cyprus. Roe has met with a number of cases in which the sudden collapse and death of cattle have been due to the bursting of cysts in the heart. Cysticercosis is less common than formerly; much remains to be done about the sanitary conditions of the villages.

R.T.L.

83—Deutsche Tierärztliche Wochenschrift.

- a. WETZEL, R., 1952.—“Die Entwicklungsdauer (Praepatentperiode) von *Strongylus edentatus* im Pferd.” 59 (17/18), 129-130.
 b. ENDREJAT, E., 1952.—“Die wichtigsten Helminthisen des Schafes und Massnahmen zur Bekämpfung.” 59 (19/20), 153-154.

(83a) Wetzel administered a dose of 250 infective larvae of *Strongylus edentatus* to a worm-free pony foal 8 months old. The foal was kept under conditions which precluded any spontaneous infection and twice or thrice weekly faecal examinations were made. Not until the 322nd day were ova recovered (at a concentration of 16 e.p.g. of faeces) and cultures then developed *S. edentatus* larvae. Wetzel has thus established the prepatent period as 322 days. The foal had repeated attacks of colic 3 weeks and again 8 weeks after ingestion of the larvae and there was also prolonged anaemia.

A.E.F.

84—Documenta de Medicina Geographica et Tropica. Amsterdam. [Continuation of Documenta Neerlandica et Indonesica de Morbis Tropicis.]

- a. MANSON-BAHR, P., 1952.—“Free-living nematodes as spurious parasites in blood preparations from Polynesians.” 4 (1), 5-8.

(84a) Manson-Bahr deals with the occurrence of strange nematodes which were found in blood preparations containing microfilariae from Polynesians. He concludes that these spurious parasites must have been contaminants since one or two of them contained eggs. Also many other blood preparations proved entirely negative. Goodey, on making a close examination of them, concluded that they might possibly be forms belonging to the genus *Aphelenchoides*, basing his opinion on the shape of the oesophageal bulb and the tail tip.

T.G.

85—East African Medical Journal.

- a. BARTON, W. L., 1952.—“The treatment of urinary bilharzia.” 29 (2), 41-44.

(85a) Of the 1,270 patients admitted to the Native Hospital, Kilifi, Kenya, between June and December 1950, 23% had urinary bilharziasis: 314 of the patients were given intensive treatment with sodium antimony tartrate according to the general principles advocated by Alves & Blair (1946) [for abstract see Helm. Abs., 15, No. 40a]. The total dosage used was based on 1 grain per 12 lb. body-weight and divided into six equal fractions given intravenously three times daily for two days. Two of the cases died of heart-block as a result of taking exercise. If the drug is diluted in normal saline to a strength of 1 grain to 5 c.c. of saline and injected very slowly, the reactions are minimal and the patients prefer this form of treatment to the long drawn-out technique previously used.

R.T.L.

86—Economic Botany. Lancaster, Pa.

- a. VALLEAU, W. D., 1952.—“Breeding tobacco for disease resistance.” 6 (1), 69-102.

(86a) In spite of the variability of *Nicotiana tabacum* little effort has been made to develop new types of tobacco or to improve the quality of those grown for manufacturing purposes. Valneau succinctly reviews the progress which has been made by tobacco breeders

towards resistance to fungal, virus and nematode infections. The major nematode infections caused by varieties of *Meloidogyne incognita*, *Pratylenchus pratensis* and *Trichodorus* sp. is stated, on Steiner's authority, to be a hitherto overlooked factor in the decline of many crops. R.T.L.

87—Experimental Parasitology. New York.

- a. VON BRAND, T., WEINSTEIN, P. P., MEHLMAN, B. & WEINBACH, E. C., 1952.—“Observations on the metabolism of bacteria-free larvae of *Trichinella spiralis*.” 1 (3), 245-255.
- b. FREEMAN, R. S., 1952.—“Temperature as a factor affecting development of *Monococestus* (Cestoda: Anoplocephalidae) in orbital mites.” 1 (3), 256-262.
- c. JASKOSKI, B. J., 1952.—“The protein coat in development of *Ascaris lumbricoides* eggs.” 1 (3), 291-302.
- d. TODD, A. C. & HOLLINGSWORTH, K. P., 1952.—“Host sex as a factor in development of *Ascaridia galli*.” 1 (3), 303-304.
- e. VAN CLEAVE, H. J., 1952.—“Some host-parasite relationships of the Acanthocephala, with special reference to the organs of attachment.” 1 (3), 305-330.

(87a) *Trichinella spiralis* larvae obtained from experimentally infected mice and rats consumed about the same amount of glycogen under aerobic and anaerobic conditions but lipids were utilized only aerobically. Volatile fatty acids, especially valeric acid, were the major end products of the carbohydrate fermentation which enabled the larvae to survive anaerobic processes, but lactic acid was produced only in minute amounts. Keto substances were formed in small quantities only in the presence of oxygen. Probably the larger part of the oxygen consumed is used in the oxidation of lipids; this may be of importance for the larval motility for which carbohydrate fermentation was insufficient. R.T.L.

(87b) The cysticercoids of *Monococestus americanus* and *M. variabilis* complete their development in *Liacarus itascensis* in 81 days at 15°C., in 52 days at 20°C. and in 45 days at 25°C. At 5°C. and 10°C. only partial development occurs. Temperatures of 0°C. and -5°C. do not harm the cysticercoids or the mite vectors but both are killed on exposure to -30°C. The size of the cysticercoids is in inverse ratio to the temperature. In multiple infections with 6 or less cysticercoids the size of the largest larva is not reduced markedly. R.T.L.

(87c) Jaskoski has studied the protein coat which envelops the eggs of *Ascaris lumbricoides* from the pig. Development of normal and of de-coated eggs immersed in detergent solution was retarded at low temperature (8°C.). The de-coated eggs withstood a higher temperature than normal eggs but there was no significant difference in oxygen consumption or RQ. Certain synthetic detergents had an inhibitory effect on development; this was greater on that of de-coated eggs and was greatly enhanced by an increase of temperature beyond the optimum for larval development. The addition of phenol decreased the time required to prevent cleavage. De-coated eggs which had already developed motile embryos hatched in detergent solution. The protein coating is an important auxiliary barrier against the passage of materials through the egg-shell. R.T.L.

(87d) A higher proportion of *Ascaridia galli* was found to develop in young cockerels than in young pullets when exposed to the same number of infective ova. When exposed at 2-3 weeks of age the average number of worms recovered from 648 cockerels was 9.31 and from 530 pullets 8.99; when exposed at 5-9 weeks the average was 3.5 from 295 cockerels, and 2.25 from 272 pullets. The differences in worm counts from the second age group were statistically significant. S.W.

(87e) The Acanthocephala have been adapted to a parasitic existence for so long that all evidence of their origin from free-living forms has been lost and it is not possible to arrange modern forms in a single series reflecting the phylogenetic relationships of their hosts. All adult Acanthocephala attach themselves to the host by a specialized hook-covered proboscis; this, the neck, and the trunk with cuticular spines are subject to various modifications as secondary attachments to the host, and the anterior end of the trunk may be modified as an inflated bulb or disc. These characters are sometimes of specific or even generic value. R.T.L.

88—Geographical Review. New York.

- a. JARCHO, S. & VAN BURKALOW, A., 1952.—“A geographical study of ‘swimmers’ itch’ in the United States and Canada.” **42** (2), 212–226.

(88a) The incidence of swimmers’ itch in the U.S.A. and Canada is correlated with the area of Pleistocene glaciation with its many lakes and swamps frequented by aquatic birds and inhabited by limnaeid snails. Other factors are the clear water and sandy beaches, which provide some of the best bathing places, the chemical composition of the water, wind direction, the seasonal variations in temperature and in the incidence of *Stagnicola emarginata*, the increasing accessibility of the infected lakes through motor transport and the legal protection of waterfowl.

R.T.L.

89—Glasgow Naturalist.

- a. MACLAGAN, D. S., 1952.—“Major pests of stock and crop in the west of Scotland.” **16** (3/4), 74–75.

(89a) This brief summary of a lecture deals mainly with the relation of sun-spot minima to insect pest incidence. A passing reference is made to the gradual increase of eelworm infections in potato and sugar-beet, and to helminths in sheep.

R.T.L.

90—Harefuah.

- a. GON, S., 1952.—[Vesical schistosomiasis.] **42** (2), 25–26. [In Hebrew.]

91—Indian Medical Gazette.

- a. BHADURI, N. V., 1952.—[A case of filariasis.] [Demonstration at 13th clinical meeting of the Calcutta School of Tropical Medicine, December 7, 1951.] **87** (1), 16.

(91a) At a clinical meeting of the Calcutta School of Tropical Medicine, Bhaduri demonstrated a case of filariasis with *Microfilaria malayi* in the blood. The patient had an axillary abscess. The testes and scrotum were affected with filariasis. There was a past history of acute lymphangitis of both groins, with abscess formation, orchitis and epididymitis.

R.T.L.

92—Indian Veterinary Journal.

- a. DIXIT, S. G., 1952.—“Some record on normal worm burden of fowls.” **29** (1), 65–68.
 b. SASTRY, S. A., 1952.—“Hidden disease of cattle in South Kanara District (lumbar paralysis).” [Correspondence.] **29** (1), 75–78.
 c. MENON, T. C., 1952.—“Contagious otorrhoea in cattle.” [Correspondence.] **29** (1), 78.

(92b) Sastry quotes an article on the incidence of an undiagnosed disease among cattle and buffaloes in South Kanara District, published by him in 1948. The principal symptoms which were those of lumbar paralysis closely resemble those recently described as cerebrospinal nematodiasis in Japan and Ceylon.

R.T.L.

(92c) Between September 1951 and January 1952, Menon successfully treated with euflavine solution 1:1,000 and distilled oil of pine tar 350 cases of stephanofilariasis in buffaloes in the Veterinary Hospital, Tattamangalam, Travancore, Cochin State.

R.T.L.

93—Iowa Veterinarian.

- a. GROTH, A. H., 1952.—“Cattle parasites.” **23** (1), 9–12.

(93a) Helminth infections should be suspected in cattle if there is rapidly progressive debility, emaciation and anaemia without loss of appetite even although anthelmintic treatment has been given. Alternating treatment may produce clinical results where repeated dosing with the same drug has failed. Management and nutrition are important regardless of treatment.

R.T.L.

94—Journal of the American Medical Association.

- a. SODEMAN, W. A. & JUNG, R. C., 1952.—“Treatment of teniasis with quinacrine hydrochloride.” *148* (4), 285–286.

(94a) Quinacrine hydrochloride (atebrin) in a dose of 0·6 gm. to 1·2 gm. according to age and size of the patient was effective in removing complete *Taenia saginata* in 10 cases and in a further case when the dose was repeated. Although nausea and vomiting occurred these were easily controlled.

R.T.L.

95—Journal of the American Veterinary Medical Association.

- a. LYND, F. T. & SHORT, G. E., 1952.—“Microfilaria in brain tissue of a skunk.” *120* (902), 297.
 b. COOPERRIDER, D. E., 1952.—“Gastrointestinal parasites of dogs—a survey.” *120* (903), 389–391.
 c. RUBIN, R., 1952.—“A survey of internal parasites of 100 dogs in Oklahoma County, Oklahoma.” *121* (904), 30–33.

(95a) The brain of a skunk from Stillwater, Oklahoma, when examined for suspected rabies, showed signs of meningitis. Inclusion bodies of the rabies virus were absent, but there were numerous microfilariae in the smears; in sections these were visible in the arachnoid spaces, and in the nervous tissue. There was no perivascular cuffing or cellular infiltration. The microfilariae measured 105 μ by 4 μ and were not sheathed. The nuclei did not extend to the tip of the tail, but formed a sharp triangle about one eighth of the body length from the posterior extremity. No adult was found.

R.T.L.

(95b) Examination of the gastro-intestinal contents of 50 dogs autopsied at the School of Veterinary Medicine, Athens, Georgia, showed that *Ancylostoma caninum* was present in 43 (an average of 49·4 specimens in 42 cases and 4,001 in a single animal), ascarids in 18, *Dipylidium caninum* in 25, *Taenia* spp. in 4 and *Trichuris vulpis* in 20. The helminth incidence is also tabulated for dogs in which a clinical diagnosis of parasitism was made and for those with other diagnoses.

P.M.B.

(95c) Autopsies on 100 dogs in Oklahoma County revealed the following helminth infections: *Ancylostoma caninum* in 72, *Toxocara canis* in 19, *Toxascaris leonina* in 2, *Trichuris vulpis* in 2, *Spirocerca lupi* in 2, an undetermined nematode (possibly *Spirocerca* sp.) in 1, *Dipylidium caninum* in 62 and other cestodes in 23. Rubin compares his findings with those of other workers in the U.S.A. The absence of *Echinococcus granulosus*, *Dirofilaria immitis* and *Strongyloides canis* is particularly noted.

P.M.B.

96—Journal of the Department of Agriculture. Victoria.

- a. PITTMAN, H. A. J., 1952.—“Leaf nematode disease in chrysanthemums.” *50* (2), 90–92.
 b. NORTH, A. D., 1952.—“Worms reduce pig meat production.” *50* (5), 225–226.

(96a) This is a general account of leaf nematode disease of chrysanthemums caused by *Aphelenchoides ritzema-bosi*. Control measures recommended are warm-water treatment at 122°F. for five minutes and the use of clean stocks for propagation. Preliminary trials made in New South Wales of spraying with parathion and watering with sodium selenate are referred to. Both gave satisfactory results but emphasis is laid on the precautions necessary with both materials.

M.T.F.

97—Journal of Helminthology.

- a. FENWICK, D. W., 1952.—“The estimation of the cyst contents of the potato-root eelworm *H. rostochiensis*.” *26* (2/3), 55–67. [Appendix by E. Reid pp. 67–68.]
 b. HESLING, J. J., 1952.—“An improved method of separating eelworm cysts from débris.” *26* (2/3), 69–70.
 c. SPEDDING, C. R. W., 1952.—“Variation in the egg content of sheep faeces within one day.” *26* (2/3), 71–86.

- d. GOODEY, J. B., 1952.—“*Tylenchorhynchus tessellatus* n.sp. (Nematoda: Tylenchida).” **26** (2/3), 87–90.
- e. GOODEY, J. B., 1952.—“*Rotylenchus coheni* n.sp. (Nematoda: Tylenchida) parasitic on the roots of *Hippeastrum* sp.” **26** (2/3), 91–96.
- f. PETERS, B. G., 1952.—“Toxicity tests with vinegar eelworm. I. Counting and culturing.” **26** (2/3), 97–110.
- g. RAYMONT, J. E. G., 1952.—“On *Hemirurus communis* Odhner from the saithe.” **26** (2/3), 111–122.
- h. WILLMOTT, S., 1952.—“The development and morphology of the miracidium of *Paramphistomum hiberniae* Willmott, 1950.” **26** (2/3), 123–132.
- i. DUKE, B. O. L., 1952.—“On the route of emergence of the cercariae of *Schistosoma mansoni* from *Australorbis glabratus*.” **26** (2/3), 133–146.
- j. WILLMOTT, S. & PESTER, F. R. N., 1952.—“Variations in faecal egg-counts in paramphistome infections as determined by a new technique.” **26** (2/3), 147–156.

(97a) Fenwick investigated the various steps in the methods used for estimating the number of viable larvae in a sample of cysts of the potato-root eelworm, *Heterodera rostochiensis*. He indicates the way in which a sample of cysts is to be removed from the batch, investigates the effects of soaking the cysts in water and of keeping them at different humidities below 100% for 14 days, and tests the various mechanical ways of opening the cysts to free the contained eggs and larvae, and the action of a 1% hypochlorite solution on them. On the counts of eggs and larvae obtained by the different methods he bases recommendations as to the procedure which will give the best estimate of the number of larvae present. Finally, estimates of the viability of eggs, as judged by their opacity or otherwise in hypochlorite solution, are checked on cysts treated with several different doses of D-D mixture and tested for viability by hatching tests in potato root diffusate; it is shown that viability cannot be determined simply by the appearance of the eggs in hypochlorite solution. In an appendix, Reid gives an easy and quick method of dissecting soaked potato-root eelworm cysts individually, by which 100 cysts can be opened in one minute.

M.T.F.

(97b) Hesling describes an adaptation of the entomologists' aspirator which has proved useful for picking up cysts of *Heterodera* species from amongst the debris obtained when they are floated up from soil. The method of manipulation is fully explained as is also the part played by the apparatus in simplifying the estimation of *Heterodera* infestations of soils. M.T.F.

(97c) There were considerable variations in the faecal egg counts of lambs collected at 2, 3 or 4-hourly intervals over a period of 24 hours. But when the counts were expressed as total eggs per period they followed a relatively smooth curve. These variations were present in animals with widely differing infestations. There was no upper limit beyond which variation was not exhibited. The maximum variation encountered was 773 eggs per gram at 7 p.m. rising to 3,024 e.p.g. three hours later. It is suggested that the variation in the count is an expression of a pattern due to a rhythm in intestinal activity of the host or in the egg laying rate of the worm population modified by the quantity of faeces in a defaecation. R.T.L.

(97d) J. B. Goodey describes and illustrates *Tylenchorhynchus tessellatus* n.sp. found associated with the roots of grasses. The tessellated appearance of its cuticle distinguishes it from all other tylenchorhynchs except *T. claytoni*, from which it differs in certain other respects. J.B.G.

(97e) J. B. Goodey illustrates and describes *Rotylenchus coheni* n.sp. attacking roots of *Hippeastrum* sp. The eelworm seems to be parthenogenetic since gravid females devoid of sperms were found but no males. The pathology of attack on the roots is also described and figured. J.B.G.

(97f) Peters gives details of the construction and use of a 1 c.c. counting slide, devised for estimating populations of vinegar eelworm but also suitable for counting the eggs and larvae of other eelworms. Culturing experiments show that the weekly multiplication factor for vinegar eelworms can be 2 or more. A device for concentrating eelworms from dirty cultures is also described. B.G.P.

(97g) An unusually heavy *Hemimurus communis* infection of *Gadus virens* from Loch Craiglin, Argyllshire, Scotland is reported, from 50 to 240 specimens being found in individual saithe. It is suggested that this may be correlated with the fact that the loch is small and enclosed. The oral sucker appears to grow more slowly than the ventral sucker as the body length increases.

R.T.L.

(97h) Willmott finds that in *Paramphistomum hiberniae* cleavage is fairly well advanced at the time the eggs are laid; seven days later the four tiers of epidermal cells are distinct and at twelve days the miracidium has attained its maximum size, the rostrum, and apical and penetration glands are distinct and the flame cells are working actively. Hatching appears to be assisted by the secretions from the glands and at laboratory temperatures takes place 14-20 days after oviposition. The epithelial cell formula is 6:8:4:2 which is the same as that observed in other paramphistome miracidia but the author was unable to detect any lateral sensory papillae.

S.W.

(97i) Duke describes the path and method of emergence of *Schistosoma mansoni* cercariae from *Australorbis glaberratus*. Observations were made on living, and on fixed and sectioned material. Cercariae freed from the sporocyst travel through veins or haemocoelic spaces to the peri-rectal space and thence to certain parts of the snail which are in contact with water. Emergence takes place normally from the prosobranch or collar, not through the anus. The integument is broken down, probably with the help of the escape glands, and the cercariae emerge head or occasionally tail first and free themselves by vigorous lashing movements, the process taking from 1 to 10 minutes from a dead snail. When a number (up to ten) are emerging from the same spot a small whitish bleb about the size of a pin head is visible. It is confirmed that cercariae are to be found in the fluid albumen of eggs from infected snails.

S.W.

(97j) Willmott & Pester describe a selective sieving technique for the collection of trematode eggs from cattle faeces; the method eliminates the use of chemicals, is practicable for both field and laboratory work and is capable of detecting very light infections, as few as five paramphistomes (as found post mortem) giving a positive count. Using this technique they have studied the weekly variation in egg output from two experimentally infected calves, the daily variation in one calf, and the relation between the number of mature paramphistomes present in the rumen and the eggs per gramme of rectal contents of animals killed in an abattoir.

S.W.

98—Journal of Infectious Diseases.

- a. WELLS, H. S., 1952.—“Studies of the effect of antibiotics on infections with the mouse pinworm *Aspiculuris tetraptera*. II. The actions of neomycin, dihydrostreptomycin and chloramphenicol.” **90** (1), 34-37.
- b. OLIVER-GONZÁLEZ, J., 1952.—“Agglutinins for sheep cells in human serums and their relationship to the A₂ isoagglutinogen-like substance in infectious organisms.” **90** (1), 44-47.
- c. WELLS, H. S., 1952.—“Studies of the effect of antibiotics on infections with the mouse pinworm *Aspiculuris tetraptera*. III. The actions of aureomycin, bacitracin and polymyxin B.” **90** (2), 110-115.
- d. SPRENT, J. F. A., 1952.—“On the migratory behavior of the larvae of various *Ascaris* species in white mice. I. Distribution of larvae in tissues.” **90** (2), 165-176.

(98a) Continuing her work on the effect of antibiotics on helminth infections in mice, Wells reports experiments which show that the antibiotics neomycin, dihydrostreptomycin and chloramphenicol increase the worm burden of mice infected with *Aspiculuris tetraptera*, as compared with controls. [For abstracts of previous parts see Helm. Abs., 20, Nos. 448a, 451b.]

R.T.L.

(98b) Oliver-González found that sheep cell agglutinins were present in sera obtained from apparently healthy persons; out of 120 tested all were positive at 6°C., and 98 at 37°C. Sera from 25 out of 26 individuals with microfilariae of *Wuchereria bancrofti* showed no sheep

cell agglutinins. The agglutinins were absorbed when the sera were incubated at 37°C. with living, mature *Trichinella spiralis* larvae or adult *Schistosoma mansoni* and after treatment with dry, pulverized adult *Necator americanus*, *Ascaris lumbricoides* or *Dirofilaria immitis*. S.W.

(98c) In this third contribution Wells states that the antibiotics aureomycin and bacitracin decrease the worm burden of mice infected with *Aspiculuris tetraptera*, and that the surviving worms are stunted. Polymyxin B only reduces the size of the worms. R.T.L.

(98d) Sprent has investigated the migratory behaviour of ascarid larvae in experimentally infected white mice and finds that two types of migration occur. In the first or tracheal type, shown by *Ascaris lumbricoides* of man and of pig, and *Parascaris equorum*, the larvae migrated through the liver, lungs and intestine and then disappeared; in the second or somatic type, shown by *Toxocara canis*, *A. columnaris*, *A. mustelarum*, *Toxascaris leonina* and *T. transfuga*, the larvae become encysted in subcutaneous tissues and tissues other than intestine in the first three species mentioned, and in the caecum and rectum in the two last mentioned, resulting in permanent or semi-permanent infections. Mice were killed at daily intervals for the first 14 days after infection and then at 21 and 28 days. The results are illustrated by a series of graphs in which the square root of the number of larvae found in the various organs is plotted against the duration of the infection. S.W.

99—Journal of Mammalogy.

- a. SCHILLER, E. L., 1952.—“Studies on the helminth fauna of Alaska. V. Notes on Adak rats (*Rattus norvegicus* Berkenhout) with special reference to helminth parasites.” **33** (1), 38–49.

(99a) During a study of the ecology and helminth fauna of *Rattus norvegicus* in the Aleutian Islands, 54% of 224 rats examined were found to be infected. The incidence was *Hymenolepis fraterna* (42.4%), cysticercus of taeniaeformis (0.4%), *Trichosomoides crassicauda* (5.4%), *Syphacia obvelata* (3.1%) and *Trichinella spiralis* (12%). The number of *Trichinella* larvae ranged from 0.1 to 1,200 per gm. of tissue. At the Davis Air Base, Adak, autopsies on sixteen dogs impounded by the military police revealed no cestodes or trematodes, but five had *Toxocara canis* and one had *Trichinella spiralis*. *T. spiralis* occurred in one of the two arctic foxes examined. The intestine of a bald eagle contained immature juveniles of *Corynosoma* but it is doubtful if the eagle was a definitive host. Probably the worms were in a fish which had been eaten. R.T.L.

100—Journal of the Marine Biological Association of the United Kingdom.

- a. WIESER, W., 1952.—“Investigations on the microfauna inhabiting seaweeds on rocky coasts. IV. Studies on the vertical distribution of the fauna inhabiting seaweeds below the Plymouth Laboratory.” **31** (1), 145–174.

(100a) From 51 samples collected at Tinside, near Plymouth, 5,905 nematodes were obtained. Data on the vertical distribution of the 70 species represented are tabulated. The most evenly distributed forms were *Enoplus communis*, *Cyatholaimus demani* and *Chromadora nudicapitata*. *Euchromadora vulgaris* and *C. nudicapitata* in the upper part of the shore are replaced in the lower part by the closely related species *E. tridentata* and *C. brevipapillata*. R.T.L.

101—Journal of Parasitology.

- a. CORT, W. W., AMEEL, D. J. & VAN DER WOUDE, A., 1952.—“Development of the mother and daughter sporocysts of a snake plagiorchiod, *Lechriorchis primus* (Trematoda: Reniferidae).” **38** (3), 187–202.
 b. READ, C. P., 1952.—“*Soboliphyme jamesoni* n.sp., a curious nematode parasite of California shrews.” **38** (3), 203–206.
 c. OLSEN, O. W., 1952.—“*Crenosoma coloradoensis*, n.sp., (Nematoda: Metastrengylidae) from the lungs of martens, *Martes caurina origenes* (Rhoads).” **38** (3), 207–209.

- d. HUNTER, W. S. & VERNBERG, W. B., 1952.—“*Leucochloridium beauforti*, n.sp. (Trematoda: Brachylaemidae) from the seaside sparrow, *Ammospiza maritima macgillivraii* (Audubon).” 38 (3), 215-217.
- e. FISCHTHAL, J. H., 1952.—“A redescription of *Phyllodistomum lysteri* Miller, 1940 (Trematoda: Gorgoderidae) from the common white sucker.” 38 (3), 242-244.
- f. STUNKARD, H. W. & HINCHLIFFE, M. C., 1952.—“The morphology and life-history of *Microbilharzia variglandis* (Miller and Northup, 1926) Stunkard and Hinchliffe, 1951, avian blood-flukes whose larvae cause ‘swimmer’s itch’ of ocean beaches.” 38 (3), 248-265.

(101a) The development of mother and daughter sporocysts of *Lechriorchis primus* is described very fully from living material. They show a type of development entirely different from those types previously observed in digenetic trematodes. In the early embryos of the daughter sporocysts one of the germinal cells develops into a germinal mass. This persists as a centre of multiplication of germinal cells to produce a constant supply of new cercarial embryos. Some of the young daughter sporocysts migrate into the digestive gland to complete their growth, others do so without leaving the mother sporocyst. The cercariae begin to reach maturity about 20 days after infection.

R.T.L.

(101b) *Soboliphyme jamesoni* n.sp. from *Sorex vagrans* in Quincy, California differs from *S. baturini* in the larger size of the cephalic sucker and the presence of cuticular dentigerous ridges on its border. There are at least 10 cervical sacs. The eggs are quite smooth.

R.T.L.

(101c) *Crenosoma coloradoensis* n.sp. from *Martes caurina origenes* of Colorado differs from all known species in (i) the shape of the spicules, (ii) the bulbular shape of the bursal rays, (iii) the absence of a gubernaculum, and (iv) the slenderness of the body which is less than 100 μ in diameter.

R.T.L.

(101d) In *Leucochloridium beauforti* n.sp. from *Ammospiza maritima macgillivraii* in North Carolina the position of the gonads is as in *L. passeri*, but the adult is small averaging only 0.598 mm. in length, and the oral sucker is markedly and consistently larger than the acetabulum.

R.T.L.

(101e) Redescribing *Phyllodistomum lysteri* Fischthal extends the brief description given by Miller. He corrects the illustration which accompanied it in which the positions of the ovary and adjacent vitellarium were reversed.

R.T.L.

(101f) The cercaria which causes dermatitis in fishermen and bathers in the Narragansett Bay area of Rhode Island, and develops in simple sporocysts in the marine snail *Nassa obsoleta*, is identified as *Cercaria variglandis* Miller & Northup, 1926. This dermatitis has been produced experimentally in persons sensitized to this species and in those sensitized to fresh water schistosome cercariae who had not been exposed to marine cercariae. The adults obtained from experimentally infected canaries, pigeons, gulls and ducklings were identical with *Microbilharzia chapini* Price, 1929 found in the lesser scaup duck, *Marila affinis*.

R.T.L.

102—Journal of Pharmacy and Pharmacology. London.

- a. QAZILBASH, N. A., 1952.—“A note on the gravimetric determination of santonin.” 4 (2), 103-108.

103—Journal of the Royal Egyptian Medical Association.

- a. LACKANY, A., 1952.—“Streptomycin sensitivity of urinary and intestinal coliform bacilli in relation to bilharzial infection.” 35 (1), 29-34.
- b. HALAWANI, A., 1952.—“The centenary of the discovery of Bilharzia.” [Editorial.] 35 (2), 89-93.

104—Journal of the Tennessee Academy of Science.

- a. DOWELL, F. H., JONES, A. W., WARD, H. L., CIORDIA, H., CLOYD, W. J. & DAVIS, D. F., 1952.—“The ‘pinworm’ problem.” *27* (1), 80–84.
- b. WARD, H. L., 1952.—“The species of Acanthocephala described since 1933, II.” *27* (2), 131–149.
- c. YARINSKY, A., 1952.—“*Hymenolepis pitymi* n.sp., a hymenolepidid cestode from the pine mouse.” *27* (2), 150–152.

(104a) Morgan & Hawkins (1949) have defined “pinworm” as any member of the Oxyuroidea that occurs in man or domestic animals but in this article by Dowell *et al.* its use is restricted to *Enterobius vermicularis*, *Oxyuris equi* and *Probstmayria vivipara*. It is pointed out that none of the drugs used at present to remove *E. vermicularis* lend themselves readily to mass treatment, owing to their cost or toxicity. There is, therefore, need for further research into its physiology and life-cycle. The result of such work on *E. vermicularis* could probably be applied to the pinworms of the horse and vice versa.

R.T.L.

(104b) In this second section of the list of families, genera and species of Acanthocephala which have been created since 1933 succinct descriptions are given of those belonging to the family Diplostidae and the orders Archiacanthocephala, Sphenacanthocephala, Gynacanthocephala and Neoacanthocephala. The hosts of these acanthocephalans are arranged alphabetically. [For abstract of Part 1 see Helm. Abs., 20, No. 459a.]

R.T.L.

(104c) Five cestodes named *Hymenolepis pitymi* n.sp. were found in a pine mouse (*Pitymys pinetorum*) in Tennessee, U.S.A. The strobila measuring 19.6 ± 3.8 mm. has approximately 350 proglottides. The scolex is unarmed and thus differs from all known species of *Hymenolepis* parasitic in mammals.

R.T.L.

105—Journal of Tropical Medicine and Hygiene.

- a. GERBER, J. H., 1952.—“Bilharzia in Boajibu.” *55* (3), 52–58; (4), 79–93.
- b. BEAVER, P. C. & SODEMAN, W. A., 1952.—“Treatment of *Hymenolepis nana* (dwarf tapeworm) infection with quinacrine hydrochloride (atebrin).” *55* (5), 97–99.
- c. WATSON, J. M., 1952.—“Clinical investigations on the treatment of urinary bilharziasis. Part III. Vitamin A.” *55* (6), 128–135.

(105a) Gerber reports on a detailed investigation into the epidemiology of *Schistosoma haematobium* in a small area in Sierra Leone. It is doubtful if *Bulinus (Physopsis) globosus*, previously reported, exists there: circumstantial evidence points rather to *B. (P.) africanus* as the intermediate host. The degree of human infection, which varied from 48% to 85% in six villages, and the intensity of infection in age groups are tabulated. Observations are recorded on the effect of the dry season, the cultivation of rice and proximity of human habitations to molluscan infection.

R.T.L.

(105b) Eight mentally defective boys of 6–19 years old were treated with atebrin for *Hymenolepis nana* infection. A single dose of 0.6 gm. to 0.8 gm. of atebrin followed by a saline purge one hour later showed that while the drug was highly effective a single dose failed to eradicate the infection.

R.T.L.

(105c) Statistical analysis failed to reveal any significant change in the number of schistosome eggs in the urine of Iraqi peasants and labourers with schistosomiasis haematobia when given a suitable supplementary diet of vitamin A.

R.T.L.

106—Khirurgiya. Moscow.

- a. ANTELAVA, N. V., 1952.—[One stage surgery of echinococcosis in the presence of free pleural space.] Year 1952, No. 1, pp. 67–71. [In Russian.]
- b. SHALIMOV, A. A., 1952.—[Biliary helminthiasis simulating duodenal ulcer.] Year 1952, No. 2, pp. 83–84. [In Russian.]

(106b) Shalimov reports two cases of ascarid infestation simulating duodenal ulcer. One child was operated on and 19 ascarids and 5 which had begun to decompose were removed

from the bile ducts. In the other child anthelmintic treatment proved to be sufficient. [No mention is made of the anthelmintic used.]

C.R.

107—Kitasato Archives of Experimental Medicine.

- a. SAKAGUCHI, S., 1952.—“Patho-anatomical and histological studies on human ascariasis, specially on the changes of intestine.” **24** (3/4), 443–446. [In Japanese pp. 563–579.]

(107a) The principal habitat of *Ascaris lumbricoides* in man is the jejunum, but at 364 autopsies in which the rate of infection was 78%, 2·8% were found in the colon, 12·5% in the stomach and 9·6% in the duodenum. Dark reddish circumscribed degenerative lesions 15 cm. in diameter were observed in the mucosa of the intestine in 71·4% when conglomerate masses of worms were present. Details are given of the histological changes which followed invasion of the appendix. The intestinal mucosa may be damaged by scratching or by pressure causing obstruction to the circulation.

R.T.L.

108—Lancet.

- a. ANON., 1952.—“Cysticercosis cerebri.” [Annotation.] **Year 1952**, **1** (6717), 1057.
b. ANON., 1952.—“An outbreak of trichiniasis.” **Year 1952**, **1** (6720), 1215.

(108b) Over 20 people in Barry, Glamorganshire, Wales, contracted trichinellosis from eating sausages made from a consignment of pork from an unknown source.

R.T.L.

109—Leaflet. Ministry of Agriculture, Northern Ireland.

- a. ANON., 1952.—“Liver fluke disease.” No. 24, 4 pp. [Revision of 1949 Leaflet.]

110—Medical Journal of Australia.

- a. FAIRLEY, N. H., 1952.—“Chemotherapeutic advances in tropical diseases of importance to Australia.” **39th Year**, **1** (19), 625–633.
b. MACFARLANE, W. V., 1952.—“Schistosome dermatitis in Australia.” **39th Year**, **1** (20), 669–672.

(110a) Among the tropical diseases mentioned with brief annotations are filariasis and schistosomiasis.

R.T.L.

(110b) Schistosome dermatitis in the Wagin lakes of Western Australia and along the swamp waters of the Murray River is caused by *Cercaria parocellata*. It is also reported from Narrabeen near Sydney. The vector is *Limnaea lessoni*. Three clinical stages are recognizable. The course of the reaction depends on the degree and time of previous exposure. In primary non-allergic lesions the cercariae are extruded in desquamated epidermis. In secondary allergic lesions they are destroyed by leucocytes, while in hypersensitized subjects there is an accelerated papular response two hours after infection.

R.T.L.

111—Medicina Colonial. Madrid.

- a. APARICIO GARRIDO, J. & PRIETO LORENZO, A., 1952.—“Presencia de huevos de *Heteroderma marioni* (Cornu, 1879) Goodey 1932, en heces. Necesidad de su conocimiento en orden a posibles errores diagnósticos.” **19** (2), 119–124.

(111a) The discovery of ova identified as those of *Heteroderma marioni* in the faeces of five horticultural workers in the Jarama River plain is recorded and is emphasized in order to obviate the possibility of incorrect diagnoses arising from similar findings elsewhere. Other ova present were those of *Trichuris trichiura*, *Enterobius vermicularis* and *Ancylostoma duodenale*.

P.M.B.

112—Medizinische Klinik.

- a. SCHEIBE, G., 1952.—“Untersuchungen über die Appendicopathia oxyurica und ihre Therapie.” 47 (1), 11-12.

(112a) Scheibe discusses the relation between appendicitis, ileocaecal lymphadenitis and *Enterobius* infection and states that a series of 247 appendicectomies revealed 183 cases of ileocaecal lymphadenitis and 167 *Enterobius* infections. He affords further proof that the appendix is a reservoir and “a place of refuge” for *Enterobius vermicularis*. In all cases where there is pain suggestive of appendicitis and when *Enterobius* infection has been established (by cellophane-strip) Scheibe recommends appendectomy followed by anthelmintic treatment (the phenothiazine preparation Contaverm is highly recommended). A.E.F.

113—Medycyna Weterynaryjna.

- a. ŻARNOWSKI, E. & WERTEJUK, M., 1952.—“Stosowanie fenotiazyny przy zwalczaniu oesophagostomatosis u świń.” 8 (1), 24-26.
b. TYMIAK, M., 1952.—“Bąblowica u owiec.” 8 (2), 74.

(113a) Żarnowski & Wertejuk report that good results were obtained with phenothiazine against *Oesophagostomum dentatum* in pigs. The single dose was 5 gm. for pigs up to 12.5 kg. body-weight, 9 gm. for those between 12.5 kg. and 25 kg., 12 gm. between 25 kg. and 50 kg., 20 gm. between 50 kg. and 100 kg. and 25 gm. to 30 gm. for those over 100 kg. Phenothiazine was well tolerated by pigs in these doses, but should be avoided in the treatment of pigs less than two months old and also of sows 4 to 11 days before farrowing. The efficacy of phenothiazine against *Ascaris lumbricoides* was only partial. C.R.

(113b) In this note there are a few very general remarks about hydatidosis in sheep. The author recommends allergic and serological tests to diagnose cases in order to eliminate infected animals from the flocks. C.R.

114—Mikrobiologiya. Moscow.

- a. SOPRUNOV, F. F. & SOPRUNOVA, N. Y., 1952.—[Interrelationship between rapacious soil fungi and nematodes.] 21 (1), 23-30. [In Russian.]

115—Mikrokosmos.

- a. ZACH, O., 1952.—“Anatomische und histologische Besonderheiten der Würmer.” 41 (8), 173-178.

(115a) In order to give students of natural history an adequate knowledge of the Vermes, Zach recommends for study the following representative species which should all be easily available: nematode, *Parascaris equorum*; trematode, *Fasciola hepatica*; cestode, *Taenia saginata*; earthworm, *Lumbricus terrestris*; leech, *Hirudo officinalis*; turbellarian, *Polyclis cornuta*. He gives instructions for preparing sections for microscopical examination and describes, with illustrations, the principal anatomical and histological characteristics of each species. A.E.F.

116—Mikroskopie. Vienna.

- a. HEPNER, W., 1952.—“Über die Verwertung menschlicher Exkreme in der kriministischen Spurenkunde.” 7 (3/4), 107-115.

(116a) In the course of his paper on the value of adequate faecal examination in crime detection Hepner mentions two cases where the recovery of parasite ova led to conviction of criminals. In the first, faeces discovered at the sites of robberies in neighbouring villages revealed parasite ova “of a tropical species” [not diagnosed] and when the same ova were recovered from the faeces of a soldier lately returned from India, who was already under suspicion, he was taxed with the robberies and confessed. In the other case, *Ascaris* ova were present in faeces found near the site of a murder: six men under suspicion were subjected to faecal examination and from one *Ascaris* ova were recovered. He was later convicted of the crime. A.E.F.

117—Mitteilungen aus der Biologischen Zentralanstalt für Land- und Forstwirtschaft.

- a. OOSTENBRINK, M., 1952.—“Die Grundlagen der Nematodenbekämpfung.” No. 74, pp. 33–36.
- b. GOFFART, H., 1952.—“Auf- und abbauende Faktoren im Massenwechsel zystenbildender Nematoden.” No. 74, pp. 36–40.
- c. NOLTE, H. W., 1952.—“Untersuchungen über die stofflichen Grundlagen bei Nematoden-schäden.” No. 74, pp. 40–42.
- d. HEY, A., 1952.—“Organisatorische Probleme der Kartoffelnematodenabwehr.” No. 74, pp. 43–45.
- e. PAPE, H., 1952.—“Erfahrungen mit der Heisswasserbeizung von Maiblumenkeimen.” No. 74, pp. 45–49.

(117a) Discussing the fundamentals of eelworm control, Oostenbrink stresses the view that plant-parasitic eelworms are probably far more widely spread than is commonly realized. For example *Heterodera punctata* has been found in 20% of fields in Holland sampled for the *H. rostochiensis* survey; yet this species was previously unrecorded from continental Europe. Where reasonable crop rotations are followed the parasites may never cause symptoms of disease whereas in monocultures they will inevitably become a serious problem. Enforced rotations, like that in Holland directed against potato root eelworm, are thus not only remedial, but also preventive, since the particular eelworm never achieves such a concentration as to give rise to disease. .

B.G.P.

(117b) Goffart selects *Heterodera rostochiensis* to exemplify the way in which various factors influence the build-up and decay of large populations of organisms. If 10 cysts were scattered over 100 square metres, eelworm disease symptoms might be expected after 6 to 7 years with continuous potatoes, after 16 years with potatoes every other year, and after 45 years with potatoes every third year. The presence of weeds is likely to hinder the multiplication of the eelworm. Soil type, and temperature and moisture are also important. Nematicides and predators are briefly discussed, and also the natural occurrence, in the cereal root eelworm at least, of degenerate non-viable larvae.

B.G.P.

(117c) Nolte briefly gives the results of experiments, carried out jointly with Dr. Köhler, designed to test the hypothesis that injury to plants attacked by parasitic nematodes may be due to toxic substances produced by the nematodes themselves. The juices pressed from the leaves of nematode-infested plants and healthy plants were used, either undiluted or diluted to certain degrees, and leaves of healthy plants of the same kind were placed in them for the uptake of liquid. Note was taken of the symptoms of crinkling, rolling and discolouration shown by the leaf blade at various time intervals. The investigations were carried out on (i) *Heterodera schachtii* infested sugar-beet and rape, (ii) *Heterodera marioni* on lettuce, (iii) *Ditylenchus dipsaci* on rye and (iv) *Pratylenchus pratensis* on barley and *Primula malacoides*. In all cases the results are considered to reveal evidence of the production of toxic substances by the nematodes.

T.G.

(117d) Hey discusses the various ways in which potato root eelworm is spread from one area to another, and the resulting administrative problem (in a country politically divided as Germany is) of taking effective control measures. This year control measures are being instigated through the seed-certification schemes, through soil sampling methods in Mecklenburg and Saxony, and through the potato marketing organizations by examining the washings of ware potatoes for floating eelworm cysts. Finally, a state law is projected prescribing compulsory registration of infested fields, a 5-year prohibition of tomatoes or potatoes and control of all rooted plants from such fields, and a three-course rotation for all uninfested land. B.G.P.

(117e) Pape reports on the effects of hot water on lily of the valley crowns treated at 49°C. for 30 minutes in order to kill any living cysts of *Heterodera rostochiensis* they might be harbouring. He shows that in all cases the treatment seriously reduces the numbers of flowers and is more dangerous the later it is given; also that crowns raised on light soil are

injured more severely than those grown on heavy soil and that lengthening the duration of treatment is also very injurious. He concludes that the injury possible from hot-water treatment is so great as to preclude its use and that only lily of the valley crowns raised on soil free from *H. rostochiensis* should be offered for export.

T.G.

118—Monatshefte für Veterinärmedizin.

- a. SCHULZE, W., 1952.—“Über die Anwendung von Suscaridin, einem Spulwurmmittel für Schweine auf Fluornatriumbasis.” 7 (4), 66-67.
- b. KRAHNERT, R., 1952.—“Sarkoides Leiomyom nach Heterakidenbefall.” 7 (4), 71-75.
- c. SCHÜTZLER, G., 1952.—“Seltene parasitäre Veränderungen der Darmlymphknoten und Pankreaszirrhose bei einem Pferde.” 7 (6), 108-110.
- d. LENSCHOW & HENNINGS, 1952.—“Seuchenartig auftretende Fohlen-Strongylidosis und ein durch wandernde Wurmlarven hervorgerufenes Mesenterialgranulom beim erwachsenen Pferd.” 7 (6), 113.
- e. SCHULZE, W., 1952.—“Beobachtungen bei Bandwurmkuuren bei Hunden.” 7 (7), 128-131.
- f. SKRJABIN, 1952.—“Die gegenwärtigen wissenschaftlichen Anschauungen über die Bedeutung der Helminthologie für die Human- und Veterinärmedizin.” 7 (10), 181-183.

(118a) Schulze reports on a series of tests with sodium fluoride against Ascaris in pigs. He used a preparation known as “Suscaridin” which is made up in 500 gm. packets (each sufficient for treating one animal) consisting of 5 gm. sodium fluoride plus [undefined] vegetable substances which mask the smell and taste of the drug. Details are not given but Schulze describes the treatment as successful and without noticeable side effects except two cases of vomiting when milk was given with the preparation. A.E.F.

(118b) Post-mortem examination of a cock pheasant which died without any previous signs of disease revealed a very heavy infection with *Heterakis gallinae* (the lumen of the intestine was completely filled with worms) and growths in both caeca which are defined as sarcoid leiomyoma. Krahnert concludes that the growths were a direct result of the heavy *H. gallinae* infection. A.E.F.

(118c) Post-mortem examination of a 3-year-old stallion which died after showing loss of appetite, cachexia and ascites, revealed greatly enlarged lymph nodes (up to the size of a hen's egg) in the duodenum and small colon, and cirrhosis of the pancreas. Both lymph nodes and pancreas showed granulation tissue with calcification and evidence of burrowing. Although no larvae were present the condition is considered to be due to *Strongylus equinus* infection. A.E.F.

(118d) Lenschow & Hennings briefly describe an enormous tumour found in the mesentery of a 4-year-old mare. Examination of the tumour revealed granulation tissue caused by migrating strongyle larvae. A.E.F.

(118e) Schulze presents in tabular form particulars—scientific names, synonyms, popular names, intermediate hosts, size, very brief descriptions—of the most important cestodes of dogs and goes on to discuss the importance of eliminating these parasites both by anthelmintic treatment and by preventive measures. Schulze considers that arecoline hydrobromide and Nemural are the best anthelmintics against canine cestodes and he sets out in some detail the best methods of administration. “Tativon” and “Verminekrin” [no details given] are also said to be satisfactory. A.E.F.

(118f) This paper presents a summary of lectures given by Skrjabin in Berlin and Leipzig during a visit to the Russian Zone of Germany in November 1951. Skrjabin's main object is to impress on veterinary students the importance of preventive measures against helminth parasites both of man and of animals. He also gives an account of helminthological research in the U.S.S.R. since 1919. A.E.F.

119—Nachrichtenblatt des Deutschen Pflanzenschutzdienstes.

- a. BÄRNER, 1952.—“Wurzelnematoden an Baldrian.” **6** (1), 15.
- b. NOLTE, H. W. & KÖHLER, H., 1952.—“Pflanzenschädigungen bei Nematodenbefall und ihre kausalen Ursachen.” **6** (2/3), 24–28.

(119a) Bärner reports the occurrence of galls on the roots of *Valeriana officinalis* L. collected in the vicinity of Dresden. The largest galls measured 6–9 mm. but there were many smaller ones present. It is clear that the nematode giving rise to the galls was *Heterodera marioni*.
T.G.

(119b) Nolte & Köhler crushed leaves of plants infested with nematodes and placed leaves from healthy plants in tubes of the juice thus obtained, using it either neat or at certain dilutions so as to allow of the absorption through the leaf petiole of poisonous substances produced within the infested plant. The plants tested were sugar-beet and rape attacked by *Heterodera schachtii*, barley and *Primula malacoides* attacked by *Pratylenchus pratensis* and rye attacked by *Ditylenchus dipsaci*. In all cases the results observed on the test leaves were crinkling, rolling of the edges and discolouration of the leaf blade. These untoward effects varied with the degree of dilution of the expressed juice. They conclude that the sap of nematode-infested plants contains injurious substances which are partly responsible for the observed pathological symptoms shown by infested plants. The substances act rather like wilt toxins but nothing is known as to their chemical nature. Nor is it known whether they arise directly from the nematodes or are a product of the host reaction to the presence of the parasites. In experiments carried out on rye infested with *Ditylenchus dipsaci* it was found that a substance is present in the sap of the plants and also in a mush of crushed nematodes which has growth-promoting properties when tested on sunflower seedlings by suitable techniques.
T.G.

120—Nature. London.

- a. LAL, M. B., 1952.—“Occurrence of larval helminths in *Gammarus pulex* (L.) from the Braid Burn, Edinburgh.” [Correspondence.] **169** (4305), 752.
- b. TAYLOR, E. L. & MICHEL, J. F., 1952.—“Inhibited development of *Dictyocaulus* larvae in the lungs of cattle and sheep.” [Correspondence.] **169** (4305), 753.
- c. WEBER, A. P., ZWILLENBERG, L. O. & LAAN, P. A. VAN DER, 1952.—“A predacious amoeboid organism destroying larvae of the potato root eelworm and other nematodes.” [Correspondence.] **169** (4307), 834–835.
- d. MICHEL, J. F., 1952.—“Self-cure in infections of *Trichostrongylus retortaeformis* and its causation.” [Correspondence.] **169** (4308), 881.
- e. MICHEL, J. F., 1952.—“Inhibition of development of *Trichostrongylus retortaeformis*.” [Correspondence.] **169** (4309), 933–934.
- f. McMAHON, J., 1952.—“Phoretic association between Simuliidae and crabs.” [Correspondence.] **169** (4311), 1018.
- g. DAWES, B., 1952.—“Trematode life-cycle enacted in a London pond.” [Correspondence.] **170** (4315), 72–73.
- h. RAGHAVAN, N. G. S., 1952.—“Viability of *Conispiculum guindiensis* in *Calotes versicolor* preserved in formalin.” [Correspondence.] **170** (4316), 125–126.

(120a) *Gammarus pulex* collected near Edinburgh harboured larvae of *Polymorphus minutus*, *Echinorhynchus truttae*, and two new cysticercoids which are briefly described and illustrated. *Cysticercoid braidburni* n.sp. is closely allied to *Cysticercus integrus* but has much smaller and fewer hooks of different shape. *Cysticercoid gammari* n.sp. has only 10 hooks on the rostellum and lacks spines on the suckers thus differing from *C. echinocotyle* and *C. “B”* of Harper, which it most closely resembles; it has, amongst other distinguishing characters, hooks differing in size and shape from those of *Cysticercus tenuirostris*, *C. mirabilis* and *C. fimbriariae*.
R.T.L.

(120b) Larvae of *Dictyocaulus* in the lungs of a partially resistant host are retarded in their development for weeks and sometimes for months. They are in the earliest fifth stage of development ranging in size down to 0.58 mm. Larger worms ranging from the fifth stage to the egg-laying adult are also found. Undeveloped *D. filaria* were also recovered from the lungs of resistant experimental sheep 100 days after administration of infective larvae. R.T.L.

(120c) Weber, Zwillenberg & van der Laan give an account of an amoeboid organism which has been found at one place in Holland attacking the larvae of the potato-root eelworm, *Heterodera rostochiensis*, and other eelworms. The trophic form of the organism attaches itself to the head or tail of a nematode and gradually surrounds it with protoplasm in the course of 20 minutes to 2 hours. In this way a temporary digestive cyst is formed and a process of active digestion of the soft structures of the nematode takes place within a digestion vacuole. After a few days only undigestable remains of the nematode are left and a large amoeboid organism up to 300 μ in diameter creeps out. If more nematodes are available they are attacked at once. The organism has been found capable of attacking several nematodes simultaneously. If nematodes are absent the trophic form encysts. Much research remains to be done on the structure and nuclear division of the organism. The letter is illustrated with three photomicrographs.

T.G.

(120d) The course of a *Trichostrongylus retortaeformis* infection experimentally established in rabbits by a single dose of larvae either terminates abruptly in a few weeks or the faecal egg count falls very gradually over many months. The age of the host and genetic differences appear to account for these different reactions. The effect of the superimposition of a new infection on an existing one is additive and if the dose is large, is fatal. From experiments with doses of various sizes, it is concluded that a certain amount of worm material is necessary to evoke self-cure.

R.T.L.

(120e) When a massive dose of *Trichostrongylus retortaeformis* larvae is administered to a previously infected rabbit, many of the larvae are inhibited in their development and may remain for a long time as third-stage larvae between the glands of the intestinal mucosa instead of returning to the lumen. When the resistance of the host declines, these dormant larvae resume their development either at the same time and cause the death of the host, or in relays giving rise to a periodic rise and fall in the number of eggs in the faeces over a period of months. The evocation of the self-cure mechanism which leads to the expulsion of adults does not affect the dormant larvae.

R.T.L.

(120f) Phoretic association of young stages of simuliids with crabs is not confined to larvae and pupae of *Simulium neavei*. *S. nyasalandicum* and *S. woodi* have both been found in a state of phoresis, the pupae and larvae of *S. woodi* occurring in the exhalant passage of the branchial chamber of the crabs. The larval stages of all three species are very similar but the adults of *S. nyasalandicum* can be distinguished by the pale areas on the legs which in *S. neavei* are uniformly dark. The pupae of *S. woodi* can be distinguished from those of both the other two species by differences in the length and structure of the breathing filaments and in the abdominal armature, and the adult by the presence of conspicuous dark abdominal bands and pronounced tarsal claw teeth.

S.W.

(120g) *Limnaea peregrina* in a small gravelly pond in London were heavily infected with cercariae of stylet, fork-tailed and echinostome types. The fork-tailed larvae were *Cercaria C* of Szidat. Three-spined sticklebacks in the pond had *Phyllostomum folium* in the ureters and "Diplostomum volvens" in the lens of each eye. Reinfection of some of the sticklebacks with *Cercaria C* gave rise to well developed diplostomula and to tailless cercariae in the eyes within a few hours. Penetration by *Cercaria C* was found to kill tadpoles within 15 minutes and minnows, goldfish, common carp, bitterling carp, tench, stone loach, perch and small sticklebacks overnight. The crucian carp was more resistant but could not withstand three successive infections at two-day intervals. Cerebral haemorrhage caused by the penetrating cercariae is a possible cause of death.

R.T.L.

(120h) Specimens of a garden lizard (*Calotes versicolor*) which were infected with *Conisepulum guindiensis* were killed by chloroform and preserved in formal saline. They were found to contain living adult filariae with embryonated ova on dissection at weekly intervals up to the sixth week after preservation. In a batch for which commercial formalin was used the worms were dead within a week.

R.T.L.

121—Nature. Paris.

- a. SENET, A., 1952.—“Le bothriocéphale, le plus long des vers intestinaux de l'homme.” No. 3205, pp. 152-154.

122—Northwest Science.

- a. JELLISON, W. L., LOSEE, R. E., KUHNS, E. & BRUNSON, R. B., 1952.—“Schistosome dermatitis in Montana.” 26 (1), 10-13.

(122a) Jellison *et al.* describe two cases of swimmers' itch contracted near Ennis, Montana. *Stagnicola palustris* was found naturally infected in the pool where the infection was acquired. Few cases have hitherto been reported from the Rocky Mountain States. P.M.B.

123—Parasitica. Gembloux.

- a. BERNARD, J., 1952.—“Recherches sur les plantes-hôtes de *Ditylenchus dipsaci* Kühn provenant de betteraves fourragères.” 8 (1), 28-39. [English, Dutch & German summaries pp. 38-39.]

(123a) Bernard records the occurrence of stem eelworm (*Ditylenchus dipsaci*) attack on forage beet at two centres in Belgium in the winter of 1950-51. He describes the symptoms of dry rot produced in the roots and gives the results of trials carried out to test the range of crop hosts susceptible to infestation by this race of the parasite. Rye, peas, onions and potatoes (leaf and stem) were very susceptible, oats less susceptible and turnips and red clover were not attacked.

T.G.

124—Pediatrics. Springfield, Ill.

- a. BEAVER, P. C., SNYDER, C. H., CARRERA, G. M., DENT, J. H. & LAFFERTY, J. W., 1952.—“Chronic eosinophilia due to visceral larva migrans. Report of three cases.” 9 (1), 7-19. [Spanish summary p. 19.]

(124a) Beaver *et al.* report in detail on three cases of chronic extreme eosinophilia in young children which they attribute to the migration of helminth larvae through the internal organs. A larval nematode believed to be *Toxocara canis* was recovered from one patient by liver biopsy. The term “visceral larva migrans” is proposed for this syndrome. Treatment with tetrazan gave inconclusive results. Similar cases of eosinophilia of unknown aetiology which have been reported in the literature are discussed and the possibility of their being helminthic in origin considered. The larva is compared with those obtained from the tissues of mice infected experimentally with *Toxocara*.

S.W.

125—Phytopathology.

- a. CHRISTIE, J. R., BROOKS, A. N. & PERRY, V. G., 1952.—“The sting nematode, *Belonolaimus gracilis*, a parasite of major importance on strawberries, celery, and sweet corn in Florida.” 42 (4), 173-176.
 b. LEAR, B., MAI, W. F., FELDMESSER, J. & SPRUYT, F. J., 1952.—“Soil fumigation experiments on Long Island, New York, to control golden nematode of potatoes.” 42 (4), 193-196.
 †c. COOPER, W. E., 1952.—“Control of peanut root knot by soil fumigation and by crop rotation.” 42 (5), 282-283.
 †d. HOLDEMAN, Q. L. & GRAHAM, T. W., 1952.—“The association of the sting nematode with some persistent cotton wilt spots in northeastern South Carolina.” 42 (5), 283-284.

(125a) Several soil inhabiting nematodes, particularly *Belonolaimus gracilis* and *Trichodorus* sp., cause extensive damage to field crops in Florida. The former species has become a major pest on strawberries, celery and sweet corn. In the Sanford area simultaneous attacks by both species severely injure celery and sweet corn. In one field of celery severe injury was caused by *Dolichodorus heterocephalus*. The symptoms and causal organisms are

† Abstract of paper presented at the Annual Meeting of the Southern Division, American Phytopathological Society, Atlanta, Ga., February 4-6, 1952.

described and a description of a number of pot experiments. In diseased strawberry plants *Pratylenchus* sp. was present only occasionally and in small numbers, whereas *B. gracilis* which is widespread in the south-east of the U.S.A. was consistently present, often in large numbers. Other crops attacked by *B. gracilis* are *Phaseolus vulgaris*, *Beta vulgaris*, *Vigna sinensis*, *Digitaria* sp. and probably *Capsicum frutescens*. Cabbage and cauliflower may be affected considerably by *Trichodorus* sp. Field observations suggest that control may follow crop rotation as *B. gracilis* will not persist for long in the soil. It can be controlled effectively by soil fumigation.

R.T.L.

(125b) Data are tabulated showing the number of viable cysts and larvae of *Heterodera rostochiensis* in soil samples taken before and after field scale treatments on 1/30 acre plots with the fumigants D-D mixture, a mixture of dichlorobutenes, Dowfume N, Dowfume W-40 at doses of 225 to 450 lb. per acre, applied by (i) a shank applicator attached to the rear of a Farmall tractor, (ii) a plough applicator and (iii) a plough scraper. In 10 of the 20 treatments recorded the viable cysts were reduced by 90% or more. At equal doses the mixture of dichlorobutenes was the most effective chemical tested, but as its cost is at least double that of D-D mixture and its efficacy is slightly greater, its use is not an economic proposition. D-D mixture, when applied in split dosages, 225 lb. followed by 450 lb. 11 days later, reduced viable nematodes from 13,000 to 7 per square foot. A 40% mixture of ethylene dibromide at dosages of 30 gal. (265 lb.) per acre was not effective.

R.T.L.

(125c) *Meloidogyne hapla* is widespread and very destructive in the peanut growing area of North Carolina. Whereas in control plots the yield was reduced by approximately 70%, fumigation with Dowfume W-40, Dowfume N, D-D mixture or D-D mixture with 15% chloropicrin, applied at the rate of 1.5 and 3.0 ml. per foot of row, resulted in normal yields. Rotation with Roanoke soybeans, maize and cotton reduced root-knot and increased the yields in fumigated and non-fumigated plots. The root-knot indices were lower and the yields higher in the fumigated than in the non-fumigated plots.

R.T.L.

(125d) As *Belonolaimus gracilis* was present in washings of soil samples from fields of wilted cotton of a resistant variety in north-eastern South Carolina, resistant and susceptible cottons were seeded in pots of soil air-dried to kill the sting nematode, and in pots of moist soil. They were then inoculated with cotton *Fusarium*. In the presence of *B. gracilis* the wilt averaged 52% in the resistant variety and 88% in the susceptible variety after approximately 10 weeks, whereas in the absence of *B. gracilis* the resistant variety showed no wilt. The loss of wilt resistance was correlated with high *B. gracilis* populations.

R.T.L.

126—Plant Disease Reporter.

- a. TAYLOR, A. L., 1952.—“Infection of tomato by *Heterodera* from tobacco soil.” **36** (2), 54.
- b. ALLISON, J. L., WELLS, J. C. & WELLS, H. D., 1952.—“Pasture and forage legume and grass diseases in North Carolina in 1950 and 1951.” **36** (2), 60.
- c. COURTYNE, W. D. & HOWELL, H. B., 1952.—“Investigations on the bent grass nematode, *Anguina agrostis* (Steinbuch 1799) Filipjev 1936.” **36** (3), 75-83.
- d. SASSER, J. N., 1952.—“Identification of root-knot nematodes (*Meloidogyne* spp.) by host reactions.” **36** (3), 84-86.
- e. GRAHAM, T. W., 1952.—“Susceptibility of tobacco species to the root-knot nematode species.” **36** (3), 87-88.
- f. THAMES, Jr., W. H., SEALE, C. C., GANGSTAD, E. O. & PATE, J. B., 1952.—“Preliminary reports of some of the disease and pest problems of kenaf, *Hibiscus cannabinus* L., in south Florida. IV, V, VI.” **36** (4), 125-126.
- g. ALLEN, M. W. & RASKI, D. J., 1952.—“Soil fumigation to control root-lesion nematode, *Pratylenchus* sp., in tuberous begonia.” **36** (5), 201-202.
- h. TISDALE, W. B., 1952.—“What's new in plant pathology.” **36** (5), 208-210.

(126a) Soil and tobacco plants from a field near Hazardville, Connecticut, on which tobacco had been grown for the past ten years showed a considerable number of *Heterodera* cysts. Tobacco and tomato plants and pieces of potato tubers were then planted in sterilized potting soil inoculated with the soil and cysts. The tomato and tobacco plants became infected

but the potatoes showed no sign of infection with *Heterodera*. The males, females, cysts, larvae and eggs found in the original soil and on the roots of the test plants showed no morphological differences from those of *Heterodera rostochiensis* although this species has not previously been reported on tobacco.

R.T.L.

(126b) *Meloidogyne* spp. were found attacking forage legumes throughout North Carolina during 1950 and 1951. Ladino clover was very susceptible and on sandy soils was frequently killed. *Ditylenchus* sp. on alfalfa, reported from one field in Harnett County in 1949, was not found anywhere in the State in 1950 or 1951. The original infected field had been ploughed up.

R.T.L.

(126c) Courtney & Howell have studied the life-history of the bent-grass eelworm, *Anguina agrostis*, which infests the flower spikelets of *Agrostis tenuis* in the Pacific north-west of the U.S.A. and causes serious reduction in seed yield. One generation only is produced in the year. The parasite can be dispersed to fresh centres by means of harvesting machinery, trucks, wagons, burlap seed bags and even on men's clothing and boots. Tests carried out by exposing strips of "tanglefoot" fly paper in the vicinity of thrashing machines showed that the flower galls were blown as much as 300 feet from the machine in the stream of air from the blower. The following species of *Agrostis* were found capable of serving as hosts: *A. tenuis*, *A. palustris*, *A. canina*, *A. exarata* and *A. alba*, whilst the following were found incapable of acting as hosts: *Phleum pratense*, *Festuca rubra*, *F. rubra* var. *commutata*, *Poa pratensis*, *P. annua*, *P. sylvestris*, *Holcus lanatus*, and *Anthoxanthum odoratum*. For control the authors recommend crop rotation with or without fallow. Pasturing and clipping failed to control gall formation. Seed mixed with galls can be given a warm-water treatment for 15 minutes at 126°F. after a pre-soak of two hours in water at 75°F. with Vastol O.S. added to the water at 8 oz. per 100 gallons. By this means the larvae in the galls are destroyed and germination of sound seed is reduced only by about 5%.

T.G.

(126d) An unknown root-knot population can be identified experimentally by the degree of susceptibility of four host plants to the different species of *Meloidogyne* and, in the case of *M. hapla* only, by the type of galls produced which are very small and accompanied by extensive root proliferation. Should an unknown population not attack peanuts, the species of *Meloidogyne* would be *M. javanica*, *M. incognita* or *M. incognita* var. *acrita*. On pepper a very light infection would indicate *M. javanica*, but a heavy infection would indicate *M. incognita* or *M. incognita* var. *acrita*. If peanuts became infected the species would be *M. hapla* or *M. arenaria*; if water-melons or any of the cereals became infected the species would be *M. arenaria* but if no infection resulted on cereals or water-melons it would be *M. hapla*.

R.T.L.

(126e) Graham endeavoured to discover if there are differences in susceptibility of six species and two hybrids of *Nicotiana* to the various species of *Meloidogyne* recently differentiated by Chitwood. Their relative susceptibility as indicated by (i) the number of galls on the roots and (ii) the number of egg masses produced on the roots, are tabulated. The amount of galling was not correlated with the number of egg masses produced. The different species of *Meloidogyne* all attacked *N. tabacum*. *N. megasiphon* was highly resistant to all of them.

R.T.L.

(126f) *Hibiscus cannabinus* grown commercially in south Florida showed moderate to severe infections of *Meloidogyne incognita* and were generally stunted or retarded in growth. Stems and terminal leaves showed symptoms resembling those of nitrogen deficiency. Observations on plants grown experimentally near Lake Worth suggest a nematode-fungus complex. On lighter sandy soils in Florida nematode injury reached serious proportions and the several kenaf crops completely failed. It was often associated with *Fusarium* wilt particularly where vegetable crops were grown. A strain of *H. sabdariffa* from French Equatorial Africa proved to be very resistant to eelworms.

R.T.L.

(126g) Allen & Raski report attack by root lesion eelworms, *Pratylenchus* sp., on the roots and tubers of begonias grown in California. Affected plants show poor growth, root rot and necrotic areas in the tubers themselves as well as sparse foliage and fewer flowers. Eight areas, each 12 ft. x 100 ft. on which healthy seedling begonias were to be planted, were fumigated with Shell D-D and with CBP-55 (chlorobromopropene) at various rates, the highest level of application being 600 lb. per acre. Seedlings were planted in May 1951 and the crop was grown until December 1951 when 50 plants were dug at random from each treated area. Roots of these were removed, chopped and mixed and the nematodes extracted by means of a funnel technique from two 10 gm. samples of each. The tubers themselves were also examined for the presence of the parasite. The results showed that although there was a marked reduction in the incidence of *Pratylenchus* infestation and an increase in tuber weight in the fumigated areas, 100% eradication had not been achieved by the treatments. Had permission been granted for the sale of the tubers there would have undoubtedly been a spread of the parasite. T.G.

(126h) Information collected from plant pathologists in the southern States of the U.S.A. indicates that root-knot nematode is causing considerable damage to peanuts in certain areas of Georgia and Virginia. *Trichodorus* sp. has been found in several areas in Florida except in the marl and muck soils. Maize, celery, beets and English peas were the most severely damaged of the cultivated crops tested. *Belonolaimus gracilis* also occurs in Florida but not on the marl or muck lands. It causes injury to peanuts in Virginia. *Dolichodorus heterocephalus* affects chiefly maize and celery but so far is limited in Florida to the Sanford area on the east coast. White-tip disease of rice has been significantly reduced by seed treatment with organic phosphate insecticides and by methyl bromide fumigation. R.T.L.

127—Plant Disease Reporter. Supplement.

- a. ANDERSON, P. J. et al., 1952.—“Soil treatments for control of nematodes in 1950.” No. 210, pp. 12-14.
- b. KELLER, J. R. & DIMOCK, A. W., 1952.—“Chrysanthemum diseases. Foliar nematode (*Aphelenchooides* sp.).” No. 210, pp. 17-18.

(127a) Soil fumigations for the control of various plant parasitic nematodes were carried out during 1950 in the following States of the U.S.A.: Connecticut, Delaware, Florida, Georgia, Maryland, New York and South Carolina. The paper brings together in brief form, information on the chemicals tested, the rate and mode of application and the results achieved for each State. T.G.

(127b) Keller & Dimock have tested the new phosphate insecticides parathion, Pestox III and Systox for foliar nematode infection by *Aphelenchooides* sp. in chrysanthemum; spraying and soil drenching were used. Parathion (15% wettable powder) as a spray at 1 lb. and 1½ lb. per 100 gal. and as a soil drench at 0·2 gm. per 1,000 sq. ft. both gave good results. Systox at 0·5 lb. per 1,000 sq. ft. as a spray and as a soil drench also gave very good control with two treatments. Pestox III at the same dilution gave good control as a spray but only fair control as a soil drench. R.T.L.

128—Plant and Soil. The Hague.

- a. CHITWOOD, B. G., SPECHT, A. W. & HAVIS, L., 1952.—“Root-knot nematodes. III. Effects of *Meloidogyne incognita* and *M. javanica* on some peach rootstocks.” 4 (1), 77-95.

(128a) Chitwood, Specht & Havis investigated the response of peach seedlings belonging to five varieties and one hybrid to two species of root-knot nematodes, *Meloidogyne incognita* and *M. javanica*. Seedlings 5-8 cm. high were planted, one per pot, in recently steam-sterilized soil and an inoculum of egg masses of the root-knot eelworm was added. After 3 months leaf samples were analysed spectro-chemically for mineral constituents and records were made of the numbers of females and egg masses per gramme of root. It was found that the peach variety S.37 was relatively resistant to both root-knot species, and that root-knot nematodes can cause significant damage to peach tree growth even when they are unable to propagate

themselves on the roots of the variety. Stimulation of growth of peach seedlings by the nematodes was associated with a greater accumulation of magnesium and calcium in the leaves than when injury occurred. In the variety S.37 the accumulation of copper and iron was consistently reduced by inoculation with both *M. incognita* and *M. javanica*. T.G.

129—Poultry Science.

- a. TODD, A. C. & STONE, W. M., 1952.—“Effect of penicillin in the diet upon experimental *Ascaridia galli* infections in chickens.” **31** (2), 202–203.
- b. KERR, K. B., 1952.—“Butynorate, an effective and safe substance for the removal of *Raillietina cesticillus* from chickens.” **31** (2), 328–336.

(129a) Penicillin given at the rate of 15 mg. per lb. of food for three weeks to 12-day-old chickens each infected with $50 \pm$ *Ascaridia galli* ova resulted in average weight gains of 334 gm. in treated birds compared with 315.5 gm. in controls. At post-mortem an average of 3.98 worms were recovered from treated birds and 7.04 from those not treated. No advantage was gained by increasing the penicillin dosage to 30 mg. per lb. of food. P.M.B.

(129b) Preliminary results of experiments with Butynorate (di-*n*-butyl tin dilaurate), administered either by capsule in a single minimum dose of 75 mg. per kg. body-weight or with the food, indicate that it has an anthelmintic value against *Raillietina cesticillus* and is relatively non-toxic. When administered with nicotine and/or phenothiazine none of the three substances impaired the efficacy of the others; it is therefore suggested that together they would form an effective anthelmintic against mixed infections with *R. cesticillus*, *Ascaridia galli* and *Heterakis gallinae*. P.M.B.

130—Prensa Médica Argentina.

- a. SZIDAT, L. & SORIA, M. F., 1952.—“Difilobotriasis en nuestro país. Nota preliminar.” **39** (2), 77–78.

(130a) *Salmo trideus* in Lake Nahuel Huapi, which lies close to the Chilean border of Argentina at about 41°S., were very heavily infected with plerocercoids of *Diphyllobothrium latum*. The heaviest infection was found near the outlet of a sewer. No information is available concerning human infection. P.M.B.

131—Proceedings of the Alumni Association of the King Edward VII College of Medicine, Singapore.

- a. SANDOSHAM, A. A., 1952.—“The challenge of the parasite.” **5** (1), 5–14.

(131a) In his inaugural address as Professor of Parasitology in the Faculty of Medicine in the University of Malaya, Sandosham deals with the importance of parasites in the tropics and briefly reviews the past accomplishments and outstanding problems in Malaya. R.T.L.

132—Proceedings of the Helminthological Society of Washington.

- a. VAN CLEAVE, H. J., 1952.—“Acanthocephalan nomenclature introduced by Lauro Travassos.” **19** (1), 1–8.
- b. KUNTZ, R. E., 1952.—“Exposure of planorbid snails from the western hemisphere to miracidia of the Egyptian strain of *Schistosoma mansoni*.” **19** (1), 9–15.
- c. BABERO, B. B. & RAUSCH, R., 1952.—“Notes on some trematodes parasitic in Alaskan Canidae.” **19** (1), 15–17.
- d. CLARK, D. T., 1952.—“Three new dilepidid cestodes, *Dictyemera numenii* n.gen., n.sp.; *Dictyemera paranumensis* n.sp. and *Anomotaenia filovata* n.sp.” **19** (1), 18–27.
- e. SPRENT, J. F. A., 1952.—“On an ascaris parasite of the fisher and marten, *Ascaris devosi* sp.nov.” **19** (1), 27–37.
- f. ALLEN, R. W. & KYLES, P. M., 1952.—“*Thysanosoma actinoides* with five suckers.” **19** (1), 37–38.
- g. ALLEN, R. W. & KENNEDY, C. B., 1952.—“Parasites in a bighorn sheep in New Mexico.” **19** (1), 39.

- h. HARGIS, Jr., W. J., 1952.—“A revision of the genera of the subfamily Tetraonchinae.” *19* (1), 40–44.
- i. ALLEN, M. W., 1952.—“Observations on the genus *Meloidogyne* Goeldi 1887.” *19* (1), 44–51.
- j. HAGEMEYER, J. W. & ALLEN, M. W., 1952.—“*Psilenchus duplexus* n.sp. and *Psilenchus teretremus* n.sp., two additions to the nematode genus *Psilenchus* de Man 1921.” *19* (1), 51–54.
- k. DOUGHERTY, E. C., 1952.—“A note on the genus *Metathelazia* Skinker, 1931 (Nematoda: Metastrongylidae).” *19* (1), 55–63.
- l. ANDREWS, J. S., 1952.—“Parasites of swine, horse, and cattle from unusual hosts.” *19* (1), 63–64.

(132a) Van Cleave has attempted to ascertain the valid dates of the names of various acanthocephalans introduced between 1913 and 1926 by Travassos. A number of these have been made in South American publications which have not been received by any of the research libraries of North America. Annotated lists are given of the acanthocephalan family, subfamily, generic and specific names which he proposed. A bibliography of his papers is listed under year of publication.

R.T.L.

(132b) Several species of planorbids from the western hemisphere were exposed to miracidia of *Schistosoma mansoni* obtained from Egyptian schoolchildren. *Australorbis glabratus* from Venezuela and Puerto Rico and *Tropicorbis havanensis* from Louisiana proved susceptible to infection, whereas specimens of the latter species from Cuba, *T. pallidus* from Venezuela and *T. albicans* from Puerto Rico were refractory. Only poorly developed sporocysts formed in *T. obstructus* from Guatemala.

R.T.L.

(132c) Four species of trematodes were collected at 520 autopsies on Alaskan canines, viz., *Metorchis albidus* and *Cryptocotyle lingua* from Eskimo dogs, and *Alaria canis* and *Plagiorchis massino* (?) from red foxes, *Vulpes fulva alascanensis*.

R.T.L.

(132d) *Anomotaenia filovata* n.sp. from the killdeer (*Charadrius vociferus vociferus*) is differentiated from the four other species of *Anomotaenia* with comparable hooks by the presence of 55 to 65 testes, and the unusually long and slender filamentous extensions of the outer egg-shell. *Dictymetra* n.g., which differs from *Choanotaenia* and other Dilepididae in the form of the uterus, contains *D. numenii* n.sp. and *D. paranumenii* n.sp. both from *Numenius americanus americanus*. In *D. numenii* the testes number 35 to 40 and the rostellar hooks 24, the strobila is longer and the scolex, rostellum and rostellar hooks are much larger than in *D. paranumenii* in which there are 15 to 17 testes and 20 rostellar hooks.

R.T.L.

(132e) *Ascaris devosi* n.sp. collected in Ontario from *Martes americanus americanus* and *M. pennanti pennanti* differs from *A. columellaris* in the more caudad position of the vulva, the relative shortness of the spicules and the wider bases (in relation to their length) of the denticles on the dentigerous ridges. The new species has been reared successfully in the skunk and ferret.

R.T.L.

(132f) An unusual variation in the number of suckers is reported in *Thysanosoma actinoides* from a sheep. The one specimen found had five suckers.

R.T.L.

(132g) A bighorn sheep (*Ovis canadensis texiana*) from the San Andres Refuge, north-east of Las Cruces, New Mexico, harboured *Nematodirus spathiger*, *Trichuris* sp., *Skrjabinema* sp. (?) and *Cysticercus tenuicollis*.

R.T.L.

(132h) The trematode genera *Haplocleidus* and *Urocleidus* are reviewed. The type species *H. dispar* is redescribed and a revised key is provided for the genera of North American Tetraonchinae. The diagnosis of *Urocleidus* given by Mizelle & Hughes (1938) is adopted, except that the dorsal and ventral anchors are equal or subequal in length, and the anchor bases are usually closely similar in shape.

R.T.L.

(132i) The generic diagnosis of *Meloidogyne* is emended to emphasize certain structures in the head of the male, female and larva. The well developed lip cap, larger lips and larger amphids differentiate the male of *Meloidogyne* from that of *Heterodera schachtii*. The anterior position of the excretory pore, the absence of a cyst stage and the presence of six radial, sclerotized ribs dividing the lip region into six sectors characterize the adult females of *Meloidogyne*. Data are tabulated to show the differences in host plant reaction in populations of the same species collected from cotton in different fields.

R.T.L.

(132j) A key to the eight species of *Psilenchus* contains two soil inhabiting forms, viz., *P. duplexus* n.sp. and *P. terextremus* n.sp. found fairly commonly on a grassy bank at Berkeley, California. Both the species are described and illustrated.

R.T.L.

(132k) Dougherty reassesses the species of *Metathelazia* which in his view represent a degenerate group of Strongylina (order Rhabditida) that have converged remarkably with the Spiruroidea (order Spirurida). He suggests the removal of *Metathelazia*, *Vogeloides* and *Pneumospirura* from the Filarioïdinae to Vogeloidinae for which the diagnosis is modified. In an appendix Dougherty justifies his rejection of *Osleroides* as used by Skrjabin, and considers it to be a synonym of *Metathelazia*, and of *Osleroides* of Orlov, Davtian & Liubimov as a subjective synonym of *Vogeloides* of Skrjabin, 1933.

R.T.L.

(132l) Internal parasites occasionally occur in unusual hosts especially when these are under nourished or weak. Examples are quoted, viz., *Stephamurus dentatus* in the body-cavity of a calf and of a cow, and an immature specimen of *Ascarops strongylina* in the abomasum of the same calf.

R.T.L.

133—Proceedings of the Rio Grande Valley Horticultural Institute, Weslaco, Texas.

- a. SLEETH, B., 1952.—“The citrus-root nematode in the Rio Grande Valley.” 6th Annual Meeting (1952), pp. 35-37.

(133a) *Tylenchulus semi-penetrans* is reported to be widespread in the Lower Rio Grande Valley and has been found localized in the Winter Haven District, Texas. The main part of the citrus producing area from Harlingen to west of Mission is heavily infested. Little or nothing can be done to eradicate or reduce the infection without seriously damaging or killing the trees. Although there is a good prospect of finding a highly resistant root-stock its adaptability to Valley conditions remains to be proved.

R.T.L.

134—Proceedings of the Society for Experimental Biology and Medicine.

- a. SOO-HOO, G., 1952.—“Effect of an arsenoso compound in the natural infestation of white mice with *Syphacia obvelata*.” 80 (1), 67-68.

(134a) A single oral administration to mice naturally infected with *Syphacia obvelata*, of 125-500 mg. per kg. body-weight of the compound Ro 2-1067 (N-(*p*-arsenosobenzyl) glycine amide hydrochloride) eliminated the parasites in 85% to 100% of the animals. The estimated CD_{50} was approximately 48 mg. per kg. and the LD_{50} was 697 mg. per kg. body-weight; the chemotherapeutic ratio, LD_{50}/CD_{50} , was 14.5. From observations on the cure rate, and on the number of worms found there appears to be a definite relation between dose and effect.

R.T.L.

135—Revista Ibérica de Parasitología.

- a. GÁLLEGUO BERENGUER, J. & PUMAROLA BUSQUETS, A., 1952.—“El parasitismo por helmintos en los perros vagabundos de Barcelona.” 12 (2), 205-213.

(135a) In Barcelona autopsies on 82 stray dogs showed that only four were free from helminths. *Eucoleus hepaticus*, which is recorded for the first time from Spain, occurred in 1.22%. The incidence of several of the species is compared with that found in Granada and Madrid.

P.M.B.

136—Revista Kuba de Medicina Tropical y Parasitología.

- a. KOURÍ, P., VALDÉS DÍAZ, R. & SOSA BENS, D., 1952.—“ Recientes adquisiciones en la clínica y en la terapéutica de la tricocefaliasis infantil.” 8 (1/3), 4-5.

137—Revue de Chirurgie.

- a. IMPERATI, L., 1952.—“ Traitement des kystes hydatiques suppurés du poumon par l'évacuation en plèvre symphysée suivie de fermeture sans drainage.” 71 (1/2), 24-29.
 b. MITROVICH, M., 1952.—“ L'échinococcose pulmonaire polykystique disséminée guérie par la pneumectomie.” 71 (1/2), 52-60.

138—Rhodesian Farmer.

- a. ANON., 1952.—“ Measles infection can be prevented.” 5 (43), 15.
 b. NEETHLING, J. L., 1952.—“ Scientists discover more about eelworm.” 5 (50), 7.
 c. ANON., 1952.—“ How to control parasites in stock.” June 18, pp. 11, 19.

(138b) In this popular account Neethling mentions that several species of *Meloidogyne* have recently been found to be present in the Union of South Africa. Four species have been definitely identified, viz., *M. arenaria*, *M. javanica*, *M. incognita* and *M. hapla*. R.T.L.

139—Rivista di Parassitologia.

- a. PUJATTI, D., 1952.—“ Sopra un caso di *Taenia saginata* (Goeze 1872) triedra.” 13 (2), 157-164. [English summary p. 163.]
 b. MONTE, T. DE & PILLERI, G., 1952.—“ Prima nota sui parassiti dell'*Epimys norvegicus* Erx. della città di Trieste.” 13 (2), 181-188. [English summary p. 187.]

(139a) Pujatti describes a triradiate *Taenia saginata* which occurred at Genoa and gives four photographs. P.M.B.

(139b) Monte & Pilleri record the occurrence of *Cysticercus fasciolaris* in 8% and *Capillaria hepatica* in 60% of 150 *Rattus norvegicus* examined at Trieste. P.M.B.

140—Science.

- a. HEMMING, F., 1952.—“ International Code of Zoological Nomenclature: proposed amplification, clarifications, and extensions to be considered by the International Congress of Zoology, Copenhagen 1953.” 115 (2991), 473.

141—Scientific Agriculture.

- a. HASTINGS, R. J., BOSHER, J. E. & NEWTON, W., 1952.—“ Experimental transfers of the bulb nematode of iris, of narcissus, and of hyacinth to potato.” 32 (6), 304-310.
 b. HASTINGS, R. J., BOSHER, J. E. & NEWTON, W., 1952.—“ The revival of the narcissus bulb eelworm, *Ditylenchus dipsaci* (Kühn) Filipjev, from sublethal hot water treatments.” 32 (6), 333-336.

(141a) The authors found that eelworms from iris bulbs would transfer to potato and were morphologically indistinguishable from *Ditylenchus destructor*. Eelworms from narcissus and hyacinth would enter potato but soon died out. Their experimental methods are described in detail. J.B.G.

(141b) Hastings *et al.* report that eelworm wool from narcissus was very resistant to a temperature of 110°F. if dry. Eelworms become, with age, less resistant to hot-water treatment. With two successive heat treatments one week apart recovery was more rapid after the second: they suggest that this effect may possibly be similar to that of the sublethal temperature which occurs in a large bath when the narcissus bulbs are first immersed. J.B.G.

142—Scottish Agriculture.

- a. MORGAN, D. O., PARRELL, I. W. & RAYSKI, C., 1952.—“Worm infestations in Scottish hill sheep.” *32* (1), 46-53.

(142a) From consideration of data collected in an extensive survey of helminth infections of Scottish hill sheep over a period of several years, it is noted that worm counts in lambs rise until mid-July and, after falling for a few weeks, rise again in August. In late autumn egg production declines and reaches a low level in the new year; in the late winter and early spring it rises again to a high level, falling rapidly in June except in some “clipped hoggs”. In gimmers and ewes egg production remains at a low level throughout the late autumn and winter, is followed by a very rapid rise in May or early June and then falls again rapidly. The causes of these seasonal fluctuations are discussed. That larvae might remain dormant throughout the winter in the mucous membranes is disproved. *Ostertagia* spp. were the main contributors to the earlier increases in worm egg output in adult sheep in spring. Many cases do not follow the normal seasonal patterns. Unfortunately most young stages are resistant to anthelmintics. At present no prophylactic dosing programmes can be suggested. The damage caused to hill lambs by worm infections is estimated at about £100,000 with a lamb crop of 16 to 17 to the score of ewes, and to Blackface and Cheviot hoggs at about £150,000 in an average year. That in rams probably reaches £50,000 per annum. About 25% of Scottish hill sheep over six months old are infected with liver-fluke which probably causes about £120,000 damage annually. R.T.L.

143—South African Medical Journal.

- a. LE RICHE, H., RIORDAN, D., SMIT, R., OCKERSE, T., BEST, P., KINNEAR, A. A. & WALKER, A. R. P., 1952.—“The Diepkloof nutrition and health study on Bantu boys, South Africa. Clinical and dental examination, chest X-rays, routine laboratory examination of stools and urine, haemoglobin and packed cell volume, tuberculin and Schick tests.” *20* (11), 207-212; (12), 233-236.
 b. HEINZ, H. J., 1952.—“Objectives and limitations of a parasitological laboratory.” *26* (13), 258-260.

(143b) Heinz impresses on the reader the necessity of close co-operation between the practitioner and the laboratory technician if reliable results are to be obtained. He points out the difficulties in selecting the concentration method to be used for the detection of worm eggs without some prior hint of the suspected cause of the clinical symptoms. R.T.L.

144—Southern Seedsman.

- a. HANSON, C. H., 1952.—“Rowan lespedeza has root knot nematode resistance.” *15* (1), 26, 66.

145—Sovetskaya Meditsina.

- a. SEMENOVA, N. S., 1952.—[New case of thominxosis.] *Year 1952*, No. 1, pp. 36-37. [In Russian.]
 b. KUDENKO, I. D., RAIGORODETSKAYA, E. A. & SLOBODSKAYA, R. A., 1952.—[Application of high frequency electric current in the treatment of ascariasis and trichocephaliasis. First communication.] *Year 1952*, No. 2, pp. 36-37. [In Russian.]

(145a) Semenova describes the case of a woman patient infested with *Capillaria aerophila*. According to the author this is the fourth case described in the literature. In spite of persistent symptoms the case responded well to treatment with five intratracheal injections of iodine and potassium iodide, 1 gm. of each in 1,000 c.c. of distilled water. The doses varied from 4 c.c. to 10 c.c. C.R.

(145b) Out of 114 patients infected with *Ascaris* and *Trichuris* which the authors treated with diathermy, high frequency electric current or with both, 71 patients (62.3%) responded to treatment. Each treatment lasted 10 minutes and it was repeated 3 to 23 times. There was no difference in the results obtained by application of the different methods. C.R.

146—Stain Technology.

- a. DEMKE, D. D., 1952.—“Staining and mounting helminths.” **27** (3), 135-139.

(146a) Demke describes methods for fixing, staining and mounting helminths. Cestodes and trematodes are relaxed in water and pressed between glass slides, then fixed in the following mixture: formalin 15 parts, acetic acid 5, glycerin 10, 95% ethyl alcohol 24, and water 46 parts. They are stained by a modification of Riser's technique [see Helm. Abs., **19**, No. 225]. Varying grades of isopropyl alcohol are used for differentiation and dehydration. After dehydration the specimens are transferred to 3% celloidin which is allowed to evaporate slowly until firm, and then flooded with 80% isopropyl alcohol. Sections or areas of the celloidin containing the specimens are cut out, dehydrated in isopropyl alcohol, cleared in beechwood creosote and mounted in xylene balsam, the coverglass used being 1 to 2 mm. larger than the celloidin. Nematodes are treated in the same way without staining. Specimens once embedded in celloidin may be stored in 80% isopropyl alcohol.

F.R.N.P.

147—Texas State Journal of Medicine.

- a. KILLINGSWORTH, W. P., MEYER, P. R., McFADDEN, I. M. & BOARDMAN, H. L., 1952.—“Treatment of pinworms (oxyuriasis). Clinical evaluation based on 1,005 cases.” **48** (1), 27-32.

(147a) The eggs of *Enterobius vermicularis* are destroyed or devitalized in one hour by a solution of 1 part in 160 of ordinary household ammonia. The superheating of all sleeping rooms to 134°F. daily is an important technique for pinworm therapy. Of the cases treated with hexylresorcinol (given orally and as enema), tetrachlorethylene, gentian violet enseals, tripelennamine hydrochloride (Pyribenzamine), parabenzylphenylcarbamate (Diphenan) and raw garlic tablets (Allisantin), those receiving Pyribenzamine and Diphenan with enemas and raw garlic gave the best results.

R.T.L.

148—Tierärztliche Umschau.

- a. WAGNER, O. & BAUER, F., 1952.—“Terit, ein neues, hochwertiges Wurmmittel.” **7** (5/6), 92-93.
 b. KRISPIEN, H., 1952.—“Beitrag zur Diagnostik von Leberschäden beim Rind in der Praxis.” **7** (7/8), 118-122.
 c. BEHRENS, H., 1952.—“Das Eingeben flüssiger Medikamente beim Schaf mit neuzeitlichen Instrumenten.” **7** (9/10), 161-163.
 d. ERHARDT, A., 1952.—“Betrachtungen über Oleum Chenopodii und Mandelsäureisoamylester als Wurmmittel bei der Ascaridose des Hundes.” **7** (13/14), 239-240.

(148a) Wagner & Bauer describe “Terit”, a new anthelmintic marketed in gelatine capsules containing tetrachlorethylene, γ -piperidine-a-a-diphenyl-n-butyramide hydrochloride, and 1-piperidine-3,3-diphenyl-propane hydrochloride [proportions not stated]. A dosage of 0.4 c.c. per kg. body-weight is recommended, given in the morning fasting or after a little food. A purgative is not essential but helps to eliminate worms. Of 142 dogs infected with hookworm or ascaris and treated according to the above recommendations, 137 gave negative faecal examinations after eight days: the remaining five were negative after a further treatment. Of eight cats infected with ascaris, seven were completely cured after one treatment and the remaining one after a second treatment. The drug was well tolerated with the exception of transitory nausea in a few cases.

A.E.F.

(148b) In the course of his review of methods of diagnosing diseases of the liver in cattle, Krispien briefly deals with the aetiology, symptoms and post-mortem findings in liver-fluke disease and hydatid infection.

A.E.F.

(148c) Behrens describes and illustrates two injection guns for administering fluid medicaments—such as phenothiazine suspensions—to sheep. The first is the “Suco-Spritze”, manufactured by the Solingen firm of Hauptner, which holds enough fluid for only a single

dose. The second is the Cooper apparatus—made in Britain—which is provided with a bag holding sufficient for about 100 doses. This is carried on the back of the operator and is linked with the gun by a tube; the gun can thus be automatically refilled. Behrens discusses the relative merits of the two instruments and concludes that while the "Suco-Spritze" is cheaper the Cooper apparatus is especially useful for mass treatment.

A.E.F.

(148d) Erhardt discusses the relative merits of chenopodium oil and the iso-amyl ester of mandelic acid in the treatment of ascariasis in dogs. While both are equally efficacious the latter is better tolerated, is much simpler to administer, and has also been used with success against ascaris in cats, horses, foxes and pigs, and (in higher doses) against hookworm and whipworm in dogs, and hookworm in cats without noticeable side effects.

A.E.F.

149—Tijdschrift over Plantenziekten.

- a. OOSTENBRINK, M., 1952.—"De monocyste-cultuur bij het waardplantenonderzoek van *Heterodera's*." 58 (3), 84-87. [English summary p. 87.]

(149a) Oostenbrink describes a method of growing plants with single cysts of *Heterodera* species to determine the host-range of the nematode. Glass tubes 15 cm. high and 2.5 cm. in diameter are filled to a height of 3 cm. with steamed fine gravel and 10 cm. with steamed soil. One cyst and a seed of the host plant are sown in each tube and the tubes plunged in steamed soil in the glass-house. Air is blown into the tubes weekly and they are lightly sprayed with nutrient solution as necessary. Formation of cysts on the roots can be observed through the glass sides of the tube, or the roots can be stained with cotton blue in lactophenol to demonstrate larval stages of the nematodes. Hatched larvae may be used in place of a cyst. The percentage of successful inoculations is variable according to the resistance of the host plant but may be 90% under favourable conditions: the best results were 44 cysts from an inoculum of 100 larvae and 12 cysts from a single cyst.

M.T.F.

150—Transactions of the American Microscopical Society.

- a. TODD, A. C., 1952.—"Factors influencing growth of a parasitic nematode." 71 (2), 102-107.
 b. BABERO, B. B., 1952.—"The effects of X-rays on the life cycle and morphology of *Ascaridia galli* (Schrank, 1788)." 71 (2), 114-119.
 c. SCHILLER, E. L., 1952.—"Studies on the helminth fauna of Alaska. III. *Hymenolepis kenaiensis* n.sp., a cestode from the greater scaup (*Aythya marila nearctica*) with remarks on endemicity." 71 (2), 146-149.
 d. OLSEN, O. W., 1952.—"Avioserpens bifidus, a new species of nematode (Dracunculidae) from ducks." 71 (2), 150-153.
 e. WARD, H. L. & WINTER, H. A., 1952.—"Juvenile Acanthocephala from the yellow fin croaker, *Umbrina roncador*, with description of a new species of the genus *Arhythmorhynchus*." 71 (2), 154-156.

(150a) Data are presented as evidence that the origin of the proteins, and the nature of the supplements in the diet of laying hens, may affect the lengths of *Ascaridia galli* grown in their offspring. Ageing of the infective ova lowers their virulence and can influence the level of the response of the host, thus indirectly influencing worm size.

R.T.L.

(150b) Exposure to 20,000 and 40,000 roentgen units definitely retarded the development of the ova of *Ascaridia galli* and induced greater morphological abnormalities in the larvae which subsequently developed than in those which developed from ova exposed to 5,000 and 10,000 units but there were no differences in the sizes of the larvae of the same age.

R.T.L.

(150c) *Hymenolepis kenaiensis* n.sp. from *Aythya marila nearctica* taken near Skilak Lake on the Kenai River, Alaska, has 8 rostellar hooks, a spinous cirrus sheath and lacks a sacculus accessorius. In these respects it resembles *H. serrata* and *H. serrata* var. *birmanica* which however have smaller hooks of markedly different shape and a much shorter rostellum. In *H. kenaiensis* the seminal receptacle is reniform and is ventral to the cirrus sac which is clavate and forms a transverse arc extending to two-thirds of the width of the proglottis.

Preliminary observations suggest that most arctic species acquire their cestode infections on their breeding grounds rather than when wintering or during migration. R.T.L.

(150d) Fragments of two females of *Avioserpens bifidus* n.sp. were taken from the base of the tongue of *Glaucionetta islandica* near Fort Collins, Colorado. The mouth of *A. bifidus* is transversely elongated and the margins of the phasmids of the first-stage larvae are smooth. The interno-dorsal and interno-ventral papillae are bifid. R.T.L.

(150e) Immature acanthocephalans from the mesenteries of *Umbrina roncador* taken off southern California are illustrated and identified as *Corynosoma obtusens* and *C. osmeri*. Other immature specimens are described and named *Arhythmorhynchus macracanthus* n.sp. The distinctive features of this new species are in the arrangement of the body spines and in the number and size of the proboscis hooks. Especially distinctive is the single extremely large hook in each longitudinal row. R.T.L.

151—Transactions and Proceedings of the Royal Society of New Zealand.

- a. JONATHAN, S. R., 1952.—“The life history of *Calicophoron ijimai* (stomach fluke of cattle) in New Zealand.” **79** (3/4), 518-524.

(151a) Jonathan briefly describes the morphology of *Calicophoron ijimai* which she collected from the rumen of 45·6% of 425 cattle examined at an abattoir. At 35°C. in Tyrode's solution the flukes remained alive for 30 days, the medium being renewed daily. *Planorbis kahuika* was the only snail found naturally infected, or which could be infected experimentally. Metacercariae were collected from blades of grass on land previously flooded by the lake from which infected snails had been obtained. The morphology of all the larval stages is described and illustrated. S.W.

152—Transactions of the Royal Society of Tropical Medicine and Hygiene.

- a. MANSON-BAHR, P. & MUGGLETON, W. J., 1952.—“Further research on filariasis in Fiji. (A study of host-parasite relationships, with special reference to the status of the Pacific filaria, *Wuchereria pacifica*.)” **46** (3), 301-326. [Addendum by J. J. C. Buckley pp. 321-324.]
 b. BUCKLEY, J. J. C., 1952.—“Demonstration of cuticular bosses in *Wuchereria bancrofti*.” [Demonstration.] **46** (4), 374.
 c. BERTRAM, D. S., 1952.—“Absence of microfilariae in the blood stream of cotton-rats exposed to heavy superinfection with the filarial worm *Litomosoides carinii*.” [Demonstration.] **46** (4), 375.
 d. KERSHAW, W. E. & WILLIAMSON, J., 1952.—“Partial suppression in the chemoprophylaxis of experimental filariasis by MSb.” [Demonstration.] **46** (4), 376.
 e. NICHOLAS, W. L., GORDON, R. M. & KERSHAW, W. E., 1952.—“The taking up of microfilariae in the blood by *Culicoides* spp.” [Demonstration.] **46** (4), 377-378.
 f. SPRENT, J. F. A., 1952.—“(1) Migratory behaviour of *Ascaris* larvae in mice. (2) The dentigerous ridges of the human and pig *Ascaris*.” [Demonstration.] **46** (4), 378.
 g. HAWKING, F. & THURSTON, J. P., 1952.—“Microfilariae in capillaries, and their periodicity.” [Demonstration.] **46** (4), 379.
 h. McGREGOR, I. A., HAWKING, F. & SMITH, D. A., 1952.—[Field trial of tetrazan.] [Demonstration.] **46** (4), 379.
 i. CHESTERMAN, C. C. & BUCKLEY, J. J. C., 1952.—“Specimen of *Tetrapetalonema* (?*T. berghei* Chardome and Peel, 1951) from a native of Yakusu, Belgian Congo.” [Demonstration.] **46** (4), 383.
 j. STANDEN, O. D., 1952.—“The penetration of cercariae of *Schistosoma mansoni* into the skin and lymphatics of the mouse.” [Demonstration.] **46** (4), 384.
 k. CARMICHAEL, J., 1952.—“Animal-man relationship in tropical diseases in Africa.” **46** (4), 385-394. [Discussion pp. 394-402.]
 l. McGREGOR, I. A. & SMITH, D. A., 1952.—“A health, nutrition and parasitological survey in a rural village (Keneba) in West Kiang, Gambia.” **46** (4), 403-427.
 m. SARKIES, J. W. R., 1952.—“Antrypol in the treatment of onchocerciasis.” **46** (4), 435-436.

(152a) Manson-Bahr & Muggleton review the work which has been done on filariasis in Fiji. They discuss the intermediaries, the development of the nocturnal type of *Wuchereria bancrofti* and the behaviour of the non-periodic type, the mechanism of periodicity and the

distribution of each type. In the addendum Buckley compares the morphology of the Fijian specimens with that of those from British Guiana. He is of the opinion that should the observed differences prove to be constant when a larger series of specimens is available for study, this would support the view that the non-periodic *W. bancrofti* is in fact a separate species. S.W.

(152b) The occurrence of minute cuticular bosses on the posterior region of the female only of *Wuchereria bancrofti* is recorded for the first time. They are present in the type specimen described by Cobbold in 1877. R.T.L.

(152c) In simple infections of cotton-rats with *Litomosoides carinii*, resulting from exposure on a single day to bites of small numbers of infective *Bdellonyssus bacoti*, microfilariae first appear in the blood in about 50 days and remain for about 18 months. In infections resulting from superinfection for about 2 to 4 months the microfilariae remained low in number and disappeared after a brief period indicating that the adult females were inhibited in growth and restricted in microfilarial production. These results have implications affecting the interpretation of observations on the epidemiology of the various filarial infections in man. R.T.L.

(152d) A dose of 250 mg. per kg. body-weight of MSb injected intraperitoneally into cotton-rats experimentally infected with *Litomosoides carinii* gave good protection, while 15·6 mg. per kg. gave poor protection. Intermediate doses gave fairly good protection. In several animals the adult worms in the pleural cavities were abnormally developed, their genital tracts were absent or under developed and there were no microfilariae. R.T.L.

(152e) When *Culicoides nubeculosus* was fed on cotton-rats infected with *Litomosoides carinii*, and on dogs with *Dirofilaria immitis*, there was a close correspondence between the expected and the actual uptake of microfilariae, thus differing from the capricious uptake by anopheline and culicine mosquitoes. In an addendum Gordon adds that the total number of microfilariae of both *Loa loa* and *Acanthocheilonema perstans* taken up by *Culicoides grahami* from a man in whom there were no microfilariae in repeated skin clips corresponded reasonably well with the number expected. R.T.L.

(152f) (1) Sprent has accumulated evidence that the ascarid larvae of carnivores do not migrate through the liver and lungs like those of *Ascaris lumbricoides*. Their tendency to become encapsulated in the tissues of experimentally infected rodents suggests that these animals may act as true intermediate hosts with some species. The larval *Ascaris devosi* when swallowed by a mouse become encapsulated in its tissues and remain alive for many months. When the mouse is eaten by a ferret they are released and grow to maturity. (2) Whereas the denticles on the oral margins of the lips of *Ascaris lumbricoides* from the pig form a conspicuous row of more or less equilateral triangles those from the human *Ascaris* are relatively smaller and concave. This difference may prove to be a valid criterion for their separation as species. R.T.L.

(152g) Photographs [not reproduced] and slides were demonstrated in illustration of Hawking & Thurston's articles in *Trans. R. Soc. trop. med. Hyg.*, 1951, 45, 307-328; 329-340. [For abstracts see Helm. Abs. 20, Nos. 587c & d.] R.T.L.

(152h) Hetrazan at a dosage of 5 mg. base per kg. daily for 5 days was effective in reducing greatly the number of microfilariae among the population of a village in Gambia. The expense of the treatment and its unpopularity owing to minor toxic reactions render the practicability of mass treatment doubtful. The demonstration consisted of photographs [not reproduced]. R.T.L.

(152i) A specimen found during a herniotomy operation at Yukusu, Belgian Congo by Chesterman was tentatively diagnosed in 1927 as *Filaria perstans*. This and two other adult specimens labelled *D. perstans* in the British Museum (Natural History) are now recognized as female *Tetrapetalonema berghei*. R.T.L.

(152j) The mode of penetration of the skin of white mice by cercariae of *Schistosoma mansoni* released from *Australorbis glabratus* was demonstrated. The stratum corneum is entered by lysis and the exposed stratum malpighii is destroyed. The panniculus adiposus offers no barrier. Once the hypodermal connective tissue is reached it is split and when the cercariae meet the resistant fascia the direction of burrowing changes from vertical to horizontal. When contact is made with a lymphatic channel it is penetrated by hour-glass squeezing. The cercariae may reach the hypodermal connective tissue within 8 minutes and the lymphatic system within 20 minutes.

R.T.L.

(152k) The native's general habit of defaecating in the bush and infecting pasture ensures the almost ubiquitous infection of the African with *Taenia saginata*. His method of cooking meat by toasting in front of a fire is insufficient to kill the cysts. That *Taenia solium* is not so common is due to the smaller number of domestic pigs kept.

R.T.L.

(152l) In this survey of the West Kiang district of the Gambia Province the incidence of helminth infections was noted in the village of Keneba. Of 636 persons examined only 3 had elephantiasis. Of 603 examined for microfilariae 220 had *Microfilaria bancrofti* and 203 had *Microfilaria perstans*; in 102 instances both occurred. The incidence of intestinal helminths as indicated by the results of faeces examinations are tabulated under age groups. The number in each group was small, but the percentages of hookworm, ascaris and tapeworm infections are tabulated.

R.T.L.

(152m) Reporting further on a series of 13 children with mild ocular onchocerciasis who were treated with antrypol in total dosages ranging from 37 mg. to 170 mg. per kg. body-weight, given as weekly intravenous injections of 0.5 gm. or 1 gm., Sarkies states that there was no clinical or laboratory evidence of the disease 10 months after the completion of treatment, whereas in the controls the disease had advanced. [For account of earlier work see No. 68a above.]

R.T.L.

153—Veterinaria. Sarajevo.

- a. BOKO, F., 1952.—“Fertilitet ehinokoka—faktor enzootičnosti i endemičnosti.” 1 (3/4), 230–239. [English summary pp. 230–231.]

(153a) A whole complex of factors are involved in the endemic and enzootic character of *Echinococcus* infection. They vary greatly in different areas. Infection in the dog, which is the most important factor, ranges from 6% in Zagreb to 16% in Sarajevo. The variation in frequency and intensity of infection in the dog depends greatly on the fertility and quantity of scolices in the intermediate hosts. Tables show the relative numbers of sterile and fertile scolices in 1 c.c. of hydatid taken from the lungs and livers of various domesticated animals. The ratio between animals with fertile and sterile echinococci is in cattle 13:87; in sheep 93.4:6.6; in pigs 87.7:12.3 and in goats 70:30. The fertility of cysts is seven times greater in sheep than in cattle and five times greater in goats than in cattle. These differences in quality and quantity of fertile scolices in the various domesticated animals are very important factors in the spread of echinococcosis in Yugoslavia.

R.T.L.

154—Veterinary Medicine.

- a. SWANSON, L. E. & BATTE, E. G., 1952.—“Internal parasites of cattle and their control.” 47 (5), 172–174, 176.
 b. DIKMANS, G., 1952.—“Research on internal parasites of cattle.” 47 (5), 199–205, xxx.
 c. TEDDER, P. W., 1952.—“Esophageal worms in a hound.” 47 (6), 257–258.
 d. SCHNELLE, G. B., 1952.—“Periodicity of microfilariae.” 47 (7), 285.

(154a) Swanson & Batte outline the symptoms and methods of diagnosis and of management of internal parasitism in cattle. Examples are cited of cases of intense loading with mixed infections in Florida. Phenothiazine is most effectively administered on a basis of 10 gm.

per 100 lb. live weight, with a maximum dosage of 70 gm. for bulls and cows. A minimum dose of 10 gm. should be given to small, weak dairy calves. A second treatment should always be given 21 days later.

R.T.L.

(154b) In the U.S.A. worm parasites are seldom mentioned as a problem for cattle raisers other than those in the southern States. As comparatively little research has been done on parasitic diseases of cattle Dikmans reviews recent advances in the area covered by the Southern Veterinary Medical Association, and briefly summarizes publications on parasitism as a cause of tropical diarrhoea in Puerto Rico, on factors relating to the life-history of cattle lungworms, on the survival of gastro-intestinal parasites on pastures, and on liver-flukes and their control.

R.T.L.

(154c) Tedder illustrates and describes from Alabama four tumour-like growths in the oesophageal wall of a black and tan hound. The dog ate well but lost weight and frequently vomited immediately after feeding, in spite of treatment. On incision of the growths, post mortem, *Spirocercus lupi* were found, the two larger growths containing 36 adult worms.

R.T.L.

(154d) Schnelle, referring to a note by Burch in *Vet. Med.*, 1952, 47, 26 [for abstract see Helm. Abs., 21, No. 40b], draws attention to the fact that Burch had apparently overlooked an article by Schnelle & Young in *Bull. U.S. Army Med. Dep.*, 1944, No. 80, pp. 52-599 [for abstract see Helm. Abs., 13, No. 92d], in which it was shown that filariasis was the greatest single problem in about 5,000 dogs and that there was a microfilarial periodicity with a sharply higher level of microfilarial concentration in the peripheral circulation at 4.30 p.m. than at any other hour between 8 a.m. and 9 p.m. It was also shown that this periodicity could be changed by the feeding habits of the dog or by therapy. A personal communication from Tahiti to the effect that microfilariae in man there universally reach the highest point at tea-time, seems to Schnelle to establish that nocturnal periodicity is a myth. It is pointed out that Burch failed to refer to the time of feeding of the dogs or if any treatment was given, or if the routine was changed during the time in which his four-hourly blood samples were taken, although all these factors can upset periodicity.

R.T.L.

155—Veterinary Record.

- a. MALKANI, P. G., 1952.—“So-called lumbar paralysis in goats.” [Correspondence.] 64 (26), 394.
- †b. CLARKE, M. L., 1952.—“Verminous aneurysms.” 64 (30), 437.
- †c. MICHEL, J. F., 1952.—“New views on ‘self-cure and protection’.” 64 (30), 437-438.
- †d. PARRELL, I. W., 1952.—“The seasonal variations in the worm-egg counts and of the worm infestations of Scottish hill sheep.” 64 (30), 438.
- †e. WILSON, A. L., 1952.—“Anthelmintic dosing of sheep.” 64 (30), 438.
- †f. LEIPER, J. W. G., 1952.—“The testing of anthelmintics, with particular reference to the development of new agents.” 64 (30), 438-439.
- g. ANON., 1952.—“Veterinary parasitology and tropical medicine.” [Editorial.] 64 (30), 440.
- h. VAUGHAN, A. W., 1952.—“A report on canine filariasis.” 64 (31), 454-455.

(155a) Injections of M.F.C. solution (calcium borogluconate 25%, magnesium hypophosphate 5%, dextrose 20%, distilled water to 100.1%) did not produce any improvement in goats with lumbar paralysis: this is not in agreement with the results claimed by Bush to have been obtained from the administration of calcium, phosphorus and magnesium. R.T.L.

(155c) In rabbits with *Trichostrongylus retortaeformis* self-cure induced by reinfection is one of the normal ways in which the host's resistance to reinfection operates. When an animal is reinfected with a massive dose the larvae enter the intestinal mucosa but do not

† Abstract of paper presented to the Association of Veterinary Teachers and Research Workers, London, April 9, 1952.]

re-emerge and development is inhibited. They are capable of resuming their development in groups, evoking the self-cure mechanism which causes their expulsion, thus making way for another batch of larvae to become adult.

R.T.L.

(155d) On most Scottish hills there is an increase in the worm egg counts in lambs during June and early July. This is succeeded by a slight fall, the count then rises again for several weeks and is followed by another fall. During the late winter and in the spring another rise lasts for several weeks. In the spring rise most of the worms are derived from larvae picked up in the latter half of March and in April. These are mainly *Ostertagia* spp. but *Cooperia curticei*, *Chabertia ovina*, *Oesophagostomum venulosum* and occasionally *Haemonchus contortus* contribute to the spring rise. An anthelmintic which would safely remove the young worms if given to hill sheep a few days before lambing would be of great value.

R.T.L.

(155e) In Scotland hill ewes should be treated for helminth infections in the spring as there is then an enormous increase in their number. Hoggs should be treated on their return from wintering before being turned out on to the hills at the end of March. Lambs should be dosed in September or October. Phenothiazine is too expensive for frequent administration. A more efficient and concentrated anthelmintic is required which will kill both immature and adult forms.

R.T.L.

(155f) The vinegar eelworm, *Turbatrix aceti*, provides a useful preliminary screening for potential anthelmintics. Serial dilutions of the compounds can be readily carried out in the worm's natural medium. For *in vivo* tests fowls naturally infected with *Heterakis*, *Capillaria* and *Ascaridia* are used.

R.T.L.

(155g) The teaching of parasitology has always been closely linked with tropical medicine but the position of veterinary parasitology is less happy. The teaching of veterinary tropical medicine in a well equipped central school is a most urgent need as the protection of animal health may be regarded as the biggest world problem of the near future.

R.T.L.

(155h) Vaughan has observed four cases of *Dirofilaria immitis* in dogs in St. Kitts. The outstanding symptoms were eczematous or papular lesions and intense skin irritation. Hetrazan administered to two of the cases at the rate of 8 mg. per lb. body-weight thrice daily for 14 days gave complete clinical cures. Treatment with fouadin was unsuccessful.

R.T.L.

156—Vlaams Diergeneeskundig Tijdschrift.

- a. WETZEL, R., 1952.—“De epidemiologie en bestrijding van longwormziekte bij het rund.” 21 (1), 11-20. [English, French & German summaries p. 20.]

(156a) In this contribution to the epidemiology of *Dictyocaulus viviparus* in cattle, Wetzel discusses the influence of climate and environment on the life-history and biology of the free-living stages. Third-stage larvae are unable to hibernate. Host-parasite inter-relationships play an important role in the onset and development of verminous bronchitis. New outbreaks are ascribable to infected animals which show no clinical symptoms. Young animals are more susceptible than older ones. Intratracheal injections although not very efficient are not to be neglected. Anti-parasitic immunity should be enhanced by rich feeding. As a simple and effective method of eradicating the disease, young calves should be reared separately from yearlings and two-year-old animals for two consecutive years.

R.T.L.

157—Wiener Tierärztliche Monatsschrift.

- a. SUPPERER, R., 1952.—“Über das Vorkommen der Filarie (s.l.) *Onchocerca gutturosa* Neumann in Rindern in Österreich und ihre Entwicklung in der Kriebelmücke *Odagmia ornata* Mg.” 39 (3), 173-179. [English, French & Italian summaries p. 178.]
- b. DIERNHOFER, K., 1952.—“Zur Behandlung des Spulwurmbefallen beim Schwein mit Natriumfluorid.” 39 (4), 257-258.

- c. LIENERT, E. & MATHOIS, H., 1952.—“Prüfung weiterer, mit der Galle ausscheidbarer Arzneimittel auf Leberegelwirksamkeit.” 39 (6), 344-352. [English, French & Italian summaries p. 351.]
- d. LIENERT, E. & MATHOIS, H., 1952.—“Untersuchungen zur Ermittlung noch stärker leberegelwirksamer Substanzen.” 39 (7), 410-416. [English, French & Italian summaries p. 416.]

(157a) Supperer reports for the first time the occurrence of *Onchocerca gutturosa* in cattle in Austria: of six animals examined five were positive. Microfilariae were found to be very widespread in many hundreds of specimens of the simuliid intermediary, *Odagmia ornata*. Supperer describes in detail the development of *O. gutturosa* in the intermediate host: there are two ecdyses, the first being completed on the 13th day after infection and the second on the 18th day, after which development is complete and the microfilariae begin to migrate to the mouth parts of the fly which they reach by the 20th to 23rd day. These times refer to the middle of May: they vary according to season and in mid-June only 8 days are required for complete development.

A.E.F.

(157b) Diernhofer briefly reviews earlier work on the treatment of ascariasis in pigs with sodium fluoride. He emphasizes the dangers of too high a dosage (no animal should receive more than 20 gm. spread over four meals) and the need to ensure even mixing with the food.

A.E.F.

(157c) Lienert & Mathois have carried out tests, using kymographic methods, on 22 substances for their efficacy against *Fasciola hepatica*. Of these, quinosol, desoxycholic acid, sodium iodide, sulphamethazine, congo red and phenol red were effective although desoxycholic acid was very toxic to the host. Quinosol and sodium iodide are considered to be the most promising substances although sulphamethazine and congo red were almost equally good.

A.E.F.

(157d) Lienert & Mathois here report on a further series of tests designed to bring to light more efficient anthelmintics against *Fasciola hepatica*. Of 27 substances tested by kymographic methods, mercurochrome (disodium salt of dibromo-hydroxymercurifluorescein) proved more efficacious than anything yet tested. Phenyl mercuric acetate and ascorbic acid were also very effective. Further research on all three substances will however be necessary before they can be used as anthelmintics.

A.E.F.

158—Zeitschrift für Parasitenkunde.

- a. HEINZE, K., 1952.—“Über Gordioidea, eine systematische Studie über Insektenparasiten aus der Gruppe der Nematomorpha.” 15 (3), 183-202.
- b. NEUHAUS, W., 1952.—“Biologie und Entwicklung von *Trichobilharzia szidati* n.sp. (Trematoda, Schistosomatidae), einem Erreger von Dermatitis beim Menschen.” 15 (3), 203-266.

(158a) Heinze reports on a collection of gordiaceans made by Franz in Styria (Austria). The following new forms are described and figured: *Neochordodes europaeus* n.g., n.sp., *Semigordionus circumannulatus* n.g., n.sp., *Gordionus scripturus* n.sp., *G. subalpinus* n.sp., *G. conglomeratus* n.sp., *G. fragmentarius* n.sp., *G. austriacus* n.sp., *Gordius plicatissimus* n.sp., *G. parvaquaticus* n.sp.; *Acutogordius* n.g. is created for *A. feae* (Camerano, 1897) type species, *A. doriae* (Camerano, 1897) and *A. incertus* (Villot). Heinze also amends the descriptions of *Beatogordius deshayesi*, *Paragordionus abbreviatus* and *Gordius nonmaculatus*.

A.E.F.

(158b) Neuhaus describes and illustrates *Trichobilharzia szidati* n.sp. and gives an account of its life-history. The cercariae cause a dermatitis in man which has become almost an occupational disease among workers in the carp breeding ponds in the basin of the river Aisch (Franconia): during June and July the men stand waist high in the water for hours while clearing water plants. It was an investigation into this infection which led to the discovery of the trematode. The intermediate hosts are *Limnaea stagnalis* and *Radix ovata*;

the definitive host (as determined from both natural and experimental infections) is the domestic duck. Cercariae can penetrate the horny skin of the duck's foot or the thick epidermis of its tongue and reach the intestine via the blood stream: then they settle in the intestinal wall and in 10-12 days are fully developed adults. The duration of life in the intestine is not longer than three months. Miracidia develop within the eggs in 4-5 days and leave the shell 5-10 minutes after having been passed out into water. In the intermediate host first generation sporocysts develop in 40 days, second generation sporocysts in 45 days and mature cercariae in 80 days. Neuhaus provides very detailed descriptions of all larval stages (especially the cercaria) and of both sexes of the adult worm and there are numerous figures. The taxonomic position of both adult and cercaria is fully discussed: the latter belongs to the ocellata group and is considered to be identical with *Cercaria parocellata* Szidat, 1942 (nec *C. parocellata* Johnston & Simpson, 1939).

A.E.F.

159—Zoologischer Anzeiger.

- a. NEUHAUS, W., 1952.—“Der Einfluss des Zwischenwirtes auf die Gestalt der Cercarie von *Trichobilharzia szidati* Neuhaus 1951 und ihre systematische Kennzeichnung.” **148** (9/10), 275-285.
- b. HUBL, H., 1952.—“Über eine neue Form der Familie Taeniidae aus einer Bisamratte.” **148** (11/12), 343-346.

(159a) Neuhaus has established statistically that the form of *Trichobilharzia szidati* cercariae from *Limnaea stagnalis* and *Radix ovata* varies with each individual host. This is explained by the fact that the snail hosts are of varying ages and that the time taken for the parasite to develop is influenced by the age of the host. The variations between individual cercariae from *L. stagnalis* and *R. ovata* are not greater than those between individuals of the same host species and this confirms the view that all the cercariae belong to one species, *Trichobilharzia szidati*.

A.E.F.

(159b) Two tapeworms, measuring 10.5 cm. and 12 cm., from the duodenum of a muskrat are described and tentatively regarded as representing a [nameless] new species of Taeniidae. The rostellum carries two alternating rings of 16 hooks. The suckers are unarmed. The scolex passes imperceptibly into an unusual, thick structure about 2 cm. long and a maximum of 2 mm. in width, which may be termed a pseudoscolex. The genital organs could not be distinguished owing to the unusually thick cuticle.

R.T.L.

NON-PERIODICAL LITERATURE

160—BELDING, D. L., 1952.—“Textbook of clinical parasitology.” New York: Appleton-Century-Crofts, Inc., 2nd edit., viii+1139 pp., \$12.00.

161—BRITISH VETERINARY ASSOCIATION, 1952.—“Laboratory aids to clinical diagnosis.” London: British Veterinary Association, Technical Development Committee. Publication No. 21, 64 pp.

This pamphlet was prepared by the Technical Development Committee of the British Veterinary Association. Part I deals with the collection of samples for laboratory examination. Part II describes post-mortem techniques. Part III, which covers technical procedures employed by the clinician, includes a section on parasitic worm infestations with photomicrographs of the various eggs and larvae of the more common helminths of domestic animals and several tables of relevant matter.

R.T.L.

162—CABALLERO Y C., E., 1952.—“Revisión de géneros y especies que integran la familia Acanthocolpidae Lühe, 1909 (Trematoda: Digeneta). Nota previa.” Mexico: Laboratorio de Helmintología del Instituto de Biología, 14 pp.

Caballero has revised the Acanthocolpidae Lühe, 1909 of which Pleorchidae Poche, 1925 and Pleorchiidae Hughes, Higginbotham & Clary, 1942 are considered to be synonyms. The family is divided into two subfamilies, Pleorchiinae n.subf. for *Pleorchis*, and Acanthocolpinae of which Stephanochasmatae and Acanthopsolinae are synonyms. In the Acanthocolpinae are included the following genera: *Acanthocolpus*, *Stephanostomum*, *Dihemistephanus*, *Neophasis*, *Lepidauchen*, *Tormopsis*, *Pseudolepidapedon*, *Monorchistephanostomum* and *Manteria*. Three new combinations and two new species are made, namely, *Stephanostomum robustum* n.comb. for *Stephanochasmus robustus* MacCallum, 1917, *Stephanostomum carangium* n.comb. for *Stephanochasmus carangis* Yamaguti, 1951, *Stephanostomum ceylonicum* n.comb. for *Stephanochasmus ceylonicus* Lühe, 1906, *Stephanostomum lebourae* n.sp. for *Stephanochasmus caducus* Looss, 1901, of Lebour, 1908, and *Tormopsis lintoni* n.sp. for *Distomum* sp. Linton, 1901. *Deropristis hispida*, *D. inflata* and *Schistorchis oligorchis* are excluded from the family.

S.W.

163—HEIDEGGER, E., 1952.—“Wurmtafeln zum Bestimmen der wichtigsten Haustierparasiten.” Stuttgart: Ferdinand Enke, 2nd edit., xii+150 pp., DM.18.

164—INTERNATIONAL NEMATOLOGY SYMPOSIUM AND TRAINING COURSE, Rothamsted Experimental Station, Harpenden, England, September 3–14, 1951. Proceedings.

- a. FENWICK, D. W., 1952.—“*Heterodera rostochiensis*: sampling techniques and the limits of their applicability.” pp. 8–12. [Discussion pp. 12–17.]
- b. AHLBERG, O., 1952.—“*Heterodera rostochiensis*: distribution in relation to climatic and geographical conditions.” pp. 18–21. [Discussion pp. 21–24.]
- c. CHAMBERLAIN, R., 1952.—“*Heterodera rostochiensis*: means of dispersal.” pp. 24–29. [Discussion pp. 29–31.]
- d. PETERS, B. G., 1952.—“*Heterodera rostochiensis*: chemical control methods.” pp. 32–36. [Discussion pp. 36–42.]
- e. OOSTENBRINK, M., 1952.—“*Heterodera rostochiensis*: crop rotations in relation to biology.” pp. 43–45. [Discussion pp. 45–49.]
- f. FRANKLIN, M. T., 1952.—“Differentiation of species of *Heterodera* (I).” pp. 50–51. [Discussion pp. 55–57.]
- g. JONES, F. G. W., 1952.—“Differentiation of species of *Heterodera* (II).” pp. 52–55. [Discussion pp. 55–57.]
- h. BINGEFORS, S., 1952.—“*Ditylenchus dipsaci*: resistant varieties of red clover in Sweden.” pp. 58–60. [Discussion pp. 60–62.]
- i. SEINHORST, J. W., 1952.—“*Ditylenchus dipsaci*: host ranges of some biological races.” pp. 62–64. [Discussion pp. 64–68.]
- j. STANILAND, L. N., 1952.—“*Ditylenchus dipsaci*: methods of control.” pp. 69–74. [Discussion p. 74.]
- k. GOODEY, J. B., 1952.—“The biology and host range of *Ditylenchus destructor*.” pp. 75–79. [Discussion pp. 79–80.]
- l. FRANKLIN, M. T., 1952.—“Some plant-parasitic aphelenchs. Disease symptoms and hosts.” pp. 80–82. [Discussion pp. 82–84.]
- m. GOODEY, T., 1952.—“The present-day importance of *Pratylenchus* species.” pp. 84–88. [Discussion pp. 88–89.]
- n. GOODEY, T., 1952.—“Report on the Training Course, 3–8 September, 1951.” pp. 90–91.

(164a) Fenwick pointed out that sampling a field for *Heterodera rostochiensis* could only give an approximate estimate of the density of the population. He dealt with the different errors introduced in the laboratory and in the field and concluded that the latter were by far the greater and more unpredictable. The findings of the sub-committee of the Conference of Advisory Entomologists set up in 1946 to consider the problem of field sampling were discussed. The speaker also considered the problem of detecting very low infestations of potato-root eelworm and emphasized the need for caution in interpreting zero counts. D.W.F.

(164b) The geographical distribution of *Heterodera rostochiensis* indicates that it is a parasite of colder rather than warmer climates although this conclusion appears to be, in part at least, invalidated by the discovery of the pest in Long Island near New York. Ahlberg then discussed the factors which determine whether or not the parasite can exist in any given place. Low temperatures seem to exercise no harmful effect. Optimum temperature for development appears to be in the neighbourhood of 20°C. Soil moisture in the neighbourhood of 70% appears most favourable and the effect of moisture is probably greater than that of temperature. Sandy soils seem to be less suitable for the nematode than other soils. The highest reproduction rate is obtained in pure leafy mould. Soil acidity seems to have no effect. Soil and climatic conditions are all of secondary importance however: level of infestation may be looked upon as a consequence of duration of infestation and cropping history and it is concluded that the absence of the parasite in a given area must be due primarily to the fact that potatoes are not grown frequently.

D.W.F.

(164c) Chamberlain pointed out that the chief means of dispersal of *Heterodera rostochiensis* was in soil adherent to seed potato tubers but other means, such as planting material with roots and soil attached, might well be of equal importance. More rapid distribution over short distances may arise through the transfer of soil in bulk for purposes such as greenhouse resoilings operations. Normal farm practices and the transportation of soil on implements constitute another factor. These diverse methods of spread can only be overcome if knowledge of the present incidence of the pest is augmented by comprehensive soil sampling and crop inspection surveys followed by voluntary or compulsory measures to prevent further spread as well as neutralization of existing sources. In Northern Ireland two Orders [Potato-root Eelworm (N.I.) Order 1945, and Potatoes (Frequency of Planting) (N.I.) Order 1951] are designed to overcome this problem: the provisions of these orders were described. D.W.F.

(164d) Opening a discussion on the chemical control of potato-root eelworm, Peters distinguished the effects of chemical agents as killing larvae, delaying or stimulating their hatching, and stimulating or retarding the growth of the crop, any one agent combining several effects differently at different concentrations. Various types of agents were described, and also methods used at Rothamsted for pot, plot, and screening tests. Difficulties of effective soil fumigation, inherent in the parasite and in the soil, were outlined. Contributions to the discussion were made by Thorne (soil preparation and mode of action of fumigants), Thompson (D-D in tomato glass-houses), Ciccarone (economic difficulties of continuous intensive cropping in Italy where root-knot, fungi and weeds must all be controlled), Van der Linde (ethylene dibromide against root-knot in tobacco seed-beds), Staniland (solubilized chlorophenols as contact nematicides), Ahlberg (discouraging results in Sweden), and Ellenby (isothiocyanates inhibiting larval hatching).

B.G.P.

(164e) Oostenbrink suggested that crop rotation was the most important factor influencing eelworm population. The annual reproduction rate in the field was 10-fold in the presence of a vigorously growing potato crop. During an incubation time of 4-9 years there is a linear mathematical increase followed by a dynamic fluctuating eelworm population when the danger level is reached. In the absence of a susceptible crop the population falls by about 50% per year, so after 3 years the population falls to about 10% of the original which is sufficient to counterbalance the 10-fold increase for a single crop. A three or four year rotation prevents the eelworm population from rising but where soil is heavily infested a longer rotation is necessary. Early potatoes give a lower reproduction rate than maincrop. Stable manure also reduces the reproduction rate. No differences in "cleaning capacity" of non-susceptible crops has been detected.

D.W.F.

(164f) At least 12 species and varieties of the genus *Heterodera* are now recognized. In this paper the morphological differences, so far as they are known, between the males and the larvae of the commoner species are outlined. It is pointed out that further morphological study of both stages of these nematodes is needed.

M.T.F.

(164g) Jones compares the cysts of the different species of *Heterodera*. If they are found still attached to the host root an egg sac may be present containing variable numbers of eggs. According to the relative development of the egg sac and the numbers of eggs in it the species can be averaged in series from *H. carotae* and *H. cruciferae* with large sacs containing as many eggs as are in the cyst itself to *H. rostochiensis* which has no egg sac. Cysts found free in soil are more difficult to identify. Measurements of mean length and breadth are useless as size is so variable: the shape varies in different species but it has not been possible to use it for identification: colour is also useless. There are some differences in cyst wall pattern and possibly in shape of the eggs. There is need for further microscopical study of these and other certain morphological characters of the larvae in order to facilitate a separation of the species on definite morphological grounds.

M.T.F.

(164h) Bingefors deals briefly with the history of stem eelworm and of varietal resistance in Sweden. He follows this with a description of experimental methods and of the selection of resistant varieties of red clover. In the discussion Frandsen describes the work on clover stem nematode in connection with the breeding and testing of resistant plants.

J.B.G.

(164i) Seinhorst describes various methods of experimentation into the host ranges of stem eelworm. Symptomatology and susceptibility are briefly defined and some results of race separation quoted. In the discussion the Danish work on legume races of stem eelworm and some observations in Belgium on resistant varieties of rye are described. The importance of weed hosts as reservoirs of stem eelworm is discussed at some length and host preferences of various races are mentioned.

J.B.G.

(164j) Staniland points out the importance of good husbandry and crop rotation and then deals in detail with experimental work on the hot-water treatment of bulbs. He deals also with the thermal death curves of some eelworms, including *Ditylenchus dipsaci*, and shows how this is applied to hot-water treatment of strawberry and other plants. Another section deals with the treatment of seed with iodine and chlorophenol, and with the fumigation of bulbs and plants with methyl bromide.

J.B.G.

(164k) J. B. Goodey summarizes the diagnostic characters of *Ditylenchus destructor* pointing out that most of the attacks on potato are due to this species, although races of *D. dipsaci* can also attack potato in Holland. Reference is made to the present known hosts of *D. destructor* and to some of the more striking facts of its biology particularly its great variation in size. In the discussion Seinhorst reported mangold and mushroom mycelium as new hosts: Thorne commented on the variation in size and other anatomical characters and gave details of an inoculation method: T. Goodey hoped that work between nematologists, biochemists and mycologists might possibly lead to the culturing of *D. dipsaci*.

J.B.G.

(164l) This is a brief comparison of *Aphelenchoides ritzema-bosi* with *A. fragariae*. The morphological differences between the two species are summarized. The various symptoms caused by *A. ritzema-bosi* in chrysanthemum, blackcurrant and strawberry, usually as an endoparasite in the first and an ectoparasite in the other two hosts, are compared with those caused by the endoparasitic habits of *A. fragariae* in ferns and begonias and its ectoparasitic habits in violets and strawberry. It is pointed out that infestation of common weeds by *A. ritzema-bosi* may be a source of danger to susceptible crops.

M.T.F.

(164m) T. Goodey introduced the topic of *Pratylenchus* spp. and presented the chief items concerning them as plant parasites under the heads of morphology, life-history, biology, symptoms and pathology. In dealing with control the following methods were dealt with, warm-water treatment of root-stocks, selection of vigorous stock, the use of resistant root-stocks and soil fumigation. In the discussion van der Vecht dealt with his work on the rice-root eelworm, *Radopholus oryzae*.

T.G.

165—INTERNATIONAL VETERINARY CONGRESS (14th), London, August 8–13, 1949.

- a. JEPSEN, A. & ROTH, H., 1952.—“Epizootiology of *Cysticercus bovis*—resistance of the eggs of *Taenia saginata*.” Vol. II, pp. 43–50. [French & German summaries pp. 49–50. Discussion p. 50.]
- b. RAYSKI, C., 1952.—“Observations on the life-history of *Moniezia* with special reference to the bionomics of the oribatid mites.” Vol. II, pp. 51–55. [French & German summaries pp. 54–55. Discussion p. 55.]
- c. WHITTEN, L. K., 1952.—“Photosensitized keratitis in calves after dosing with phenothiazine.” Vol. II, pp. 56–60. [French & German summaries p. 59. Discussion pp. 59–60.]
- d. KOTLÁN, A., 1952.—“The development and pathological significance of the histotropic phase in parasitic nematodes.” Vol. II, pp. 61–64. [French & German summaries pp. 63–64. Discussion p. 64.]
- e. NAERLAND, G., 1952.—“Nutrition in relation to nematode parasitism in sheep.” Vol. II, pp. 65–70. [French & German summaries pp. 69–70. Discussion p. 70.]
- f. GORDON, H. McL., 1952.—“Anthelmintics and the control of helminth diseases of sheep.” Vol. II, pp. 71–80. [French & German summaries pp. 78–80. Discussion p. 80.]
- g. TAYLOR, E. L., 1952.—“The epidemiology of fascioliasis in Britain.” Vol. II, pp. 81–87. [French & German summaries pp. 85–86. Discussion pp. 86–87.]

(165a) In Denmark the incidence of *Cysticercus bovis* in cattle has increased from 0·11% in 1918 to 0·71% in 1948 and the occurrence of *Taenia saginata*, based on Danish hospital returns, has increased from 0·7 per 10,000 inhabitants in 1937 to 3·2 per 10,000 in 1947. In 1947 the number of cases of infected carcasses dealt with by the Meat Inspection Service was approximately 7,000 while the cases of human infection totalled 1,368. Women were infected five times more frequently than men. Contaminated liquid manure, sewage, water and grass still contained viable oncospheres capable of infecting calves after 71, 16, 33 and 159 days respectively. On grass desiccation is an important limiting factor, especially in summer. About three-quarters of the cysticerci in a heavily infected calf were still alive 9½ months after infection.

R.T.L.

(165b) Rayski recommends that young stock, particularly lambs and calves, should not be grazed on old permanent pasture if infection with anoplocephaline cestodes is to be avoided. There is an increase in the oribatid mite population with the age of the pasture. Ploughing and cultivation greatly reduce the soil fauna and young pastures are free from mites, but the strips of uncultivated waste land bordering the fields which are frequently grazed are a source of danger. Mites occur fairly evenly throughout the year and infection is irrespective of season. In the discussion Kotlán stated that conditions of infestations by *Moniezia* were different in Hungary and that this occurred invariably in the spring.

R.T.L.

(165c) Keratitis following the administration of phenothiazine to calves in New Zealand occurs 12–36 hours after dosing. The photosensitizing agent is phenothiazine sulphoxide absorbed into the bloodstream from the alimentary canal. Keratitis seldom occurs in sheep as the sulphoxide does not appear in the bloodstream unless large doses of phenothiazine are given. Protection of treated animals from direct sunlight the day after the administration of the drug is recommended.

R.T.L.

(165d) Kotlán defines the term “histotropic phase” as designating “migratory phenomena characteristic of nematode larvae which upon introduction into the alimentary tract, and reaching their normal habitat, invade the mucosa in order to pass the third and perhaps also the fourth larval moult in that situation”. He then describes the process in *Oesophagostomum* spp. and *Hyostrongylus rubidus* and its normal and abnormal course of development.

S.W.

(165e) Under the climatic conditions prevailing on the west coast of Norway only lambs during their first year, and ailing or inadequately nourished adult sheep, suffer from nematode parasitism.

R.T.L.

(165f) Gordon, in this review of our knowledge of anthelmintics, stresses the need for concentration on their preventive rather than curative use. He describes the efficacy of the more common anthelmintics against different species of nematodes in sheep, and their effect on sub-clinical infestations; he discusses some of the causes of erratic results from treatment.

S.W..

(165g) Severe epidemics of fascioliasis occurred in Britain during the winters of 1946-47 and 1947-48. Although the use of carbon tetrachloride has effected an enormous saving the prevention of loss from acute fascioliasis still awaits solution. Taylor deals with the ecology of the vector, *Limnaea truncatula*, its aestivation, rate of multiplication and the association between the aestivating snail and *Fasciola hepatica*. Studies on the residual infection of encysted cercariae showed that they are destroyed by direct sunlight within two to four weeks and that in stagnant water and partial shade there is a mortality of 80% to 90% within six months. Experiments showed that the rate of infestation must be very high to produce acute fascioliasis. The definitive hosts are apparently unable to develop specific resistance. On many farms in Britain the vector is confined to shallow ditches or small springs or seepages. Regular inspections at chosen sites for rise and fall of the snail population are advisable.

R.T.L.

166—ROTHSCHILD, M. & CLAY, T., 1952.—“Fleas, flukes and cuckoos. A study of bird parasites.” London: Collins, xiv + 304 pp., 21/-.